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83rd Annual Meeting, Boston, August 18-22, 1946

Headquarters—Statler Hotel

Volume CIX • AUGUST 1946 • Number 833

Research
Literature
College Training
Practice
Technical Material
Organization

The Vital Elements of a Modern Veterinary Service

Frankly surveyed from the standpoints of public service, popular demand, professional interest, and scientific progress, the program of the Boston meeting sketches the orderly *present* and the predictable *future* of veterinary medicine in the affairs of this period.

Scientific *research* promptly reported in dependable *literature* and put into *practice* without delay by *college-trained* men provided with *technically exact material*, all independent units of the food industry, is the picture of the veterinary profession portrayed by the program to be presented at the AVMA convention in August.

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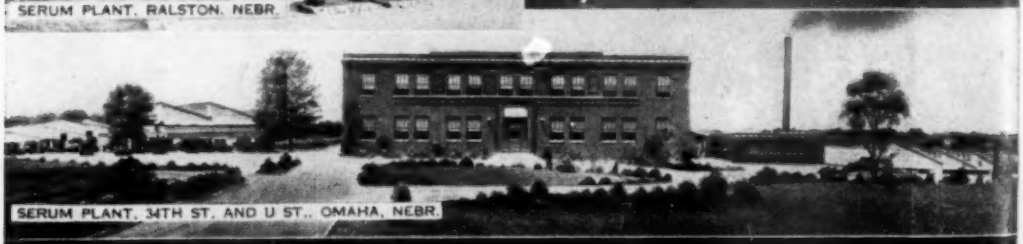

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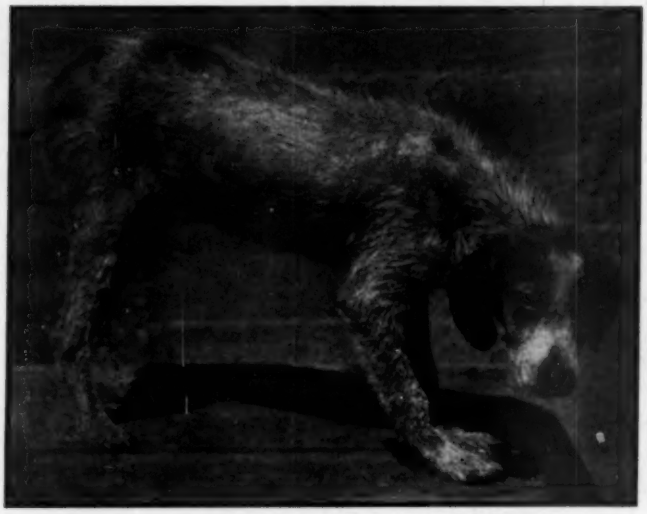

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The Pathology of Equine Virus Abortion

CLIFFORD WESTERFIELD, M.S., D.V.M., and W. W. DIMOCK, B.S., D.V.M.
Lexington, Kentucky

EQUINE VIRUS ABORTION is an epizoötic contagious disease of Equidae caused by a filterable virus and characterized by abortion in the later stages of pregnancy without premonitory symptoms of impending parturition. The aborted fetus exhibits characteristic gross and microscopic lesions, among which are typical viral, intranuclear inclusion bodies.

HISTORY

Dimock and Edwards[1] published the first report on virus abortion in mares in 1933. However, as early as 1922, epizoötic or virus abortion was suspected as a distinct disease entity (Dimock and Edwards[2]) when an outbreak of abortion was observed in a band of 20 pregnant mares which were immunized against infectious equine abortion (*Salmonella abortivoequina*). Eleven of these mares aborted. The agglutination test for *S. abortivoequina* was negative. Internal organs of the expelled fetuses were bacteriologically negative, and the causative organism of infectious equine abortion was not recovered from the genital tracts of the aborting mares.

Studies conducted by the Department of Animal Pathology, Kentucky Agricultural Experiment Station[2 to 6] since that time revealed that abortion may be induced in mares by feeding unfiltered material from diseased fetuses and by injection of filtrates of various fetal fluids and organs. Fetuses thus aborted were bacteriologically negative and displayed pathologic changes characteristic of the disease.

The contagious nature of equine virus abortion was demonstrated by its spread to noninfected mares through contact with expelled fetal membranes and through contact with an attendant who previously had handled virus abortion fetuses. It has also spread to noninfected mares quartered on infected premises and from one group of mares to another when there was no known means of contact between the groups.

—*Kentucky Agricultural Experiment Sta. Bull. 426*

Fig. 1—Surface of liver from an aborted equine fetus with white areas of degeneration.

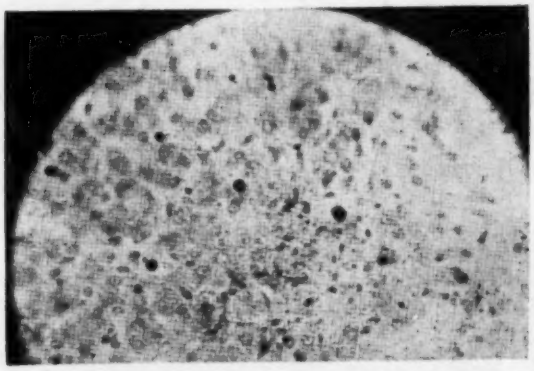
DISTRIBUTION

The disease was found in at least seven states besides Kentucky and in four countries outside of the United States[7 to 11].

The investigation reported in this paper is in connection with a project of the Kentucky Agricultural Experiment Station and is published by permission of the Director.

SYMPTOMS

Equine virus abortion frequently appeared in epizoötic form with abortions occurring during the eighth to tenth months of pregnancy, although fetuses were expelled as early as the end of the sixth month of gestation, and mares which became infected with the virus very late in pregnancy gave birth to dead or live foals at the end



—*Kentucky Agricultural Experiment Sta. Bull.* 426

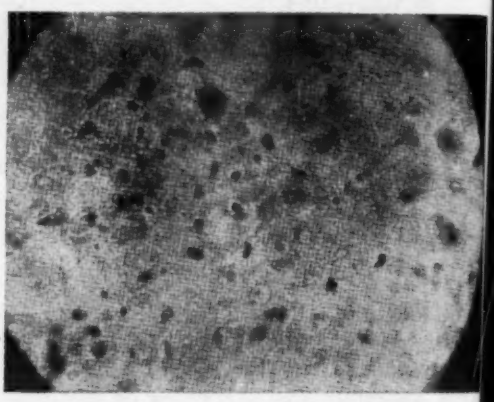
Fig. 2—Photomicrograph of section of liver from an aborted equine fetus. An area of focal necrosis and intranuclear inclusion bodies are seen. x 450.

of the usual gestation period. Foals born alive often died within thirty-six hours following parturition. Fetuses were expelled without any indication of approaching abortion on the part of the mare, and the fetal membranes were usually discharged with the fetus or shortly thereafter. The mares suffered no apparent physical reaction from the disease, and their genital tracts returned to normal quite as promptly as following a normal parturition. After aborting, mares bred the same season produced normal foals.

GROSS PATHOLOGY

Pathologic changes within the aborted fetus and its fetal membranes, or in the foal dying shortly after birth, were not always apparent to the naked eye. In the majority of cases, however, the cadavers presented typical gross lesions which were sufficiently in evidence to permit a positive diagnosis without the aid of histologic technique. These gross lesions, although rarely found in entirety in a single specimen, were as follows: externally, an ascitic appearance was noted, together with yellowish discoloration of varying intensity which was particularly evident in the foot pads; the marked congestion of the liver, in addition to the pressure on the diaphragm from serous fluid within the thoracic cavity, produced an appearance of ascites when no appreciable accumulation of fluid was present in the peritoneal cavity; the organs of the abdominal cavity were more or less icteric in appearance as were the joint cavities.

The liver exhibited the most striking diagnostic lesion from the macroscopic standpoint. Beneath the capsule of this organ, which was usually turgid from the accumulation of blood within its sinusoids, there were small, grayish white to yellowish necrotic areas, variable in size from the point of visibility up to 2 mm. in diameter (fig. 1). These foci of degeneration were



—*Kentucky Agricultural Experiment Sta. Bull.* 4

Fig. 3—Photomicrograph of section of liver from a aborted equine fetus in an area of focal necrosi Intranuclear inclusion bodies are seen. x 900.

found to range from a few to very many. I some cases, they were scattered over th whole surface of the liver while, in other they were restricted to certain areas o lobes. Upon gross section, similar di persed macroscopic areas were sometime visible throughout the parenchyma of th organ. The spleen was hyperemic and it surface marked by hemorrhages varyin from small petechiae to ecchymoses. Th mesenteric and colic lymph nodes were en larged, congested, and hemorrhagic. I a few cases, the small intestine wa markedly congested in certain areas.

An abundant quantity of serous fluid, o casionally of sanguinous nature, was ge erally found in the thoracic cavity. Th lungs were edematous and congested, an their surfaces exhibited petechial hemo

rhages, often of ecchymotic proportions. Macroscopically, the edema appeared to be confined to the subcapsular and interstitial tissues of the lungs. The thymus was edematous, hyperemic and, in some cases, hemorrhagic. The pericardial cavity was distended with serous fluid. Numerous hemorrhages, varying from petechiae to ecchymoses, were found subjacent to the epicardium, particularly on the ventricles, where they followed the coronary and left longitudinal grooves of the heart. Along the latter groove, they often assumed a striking linear arrangement toward the apex of the heart.

The most pronounced changes in the fetal membranes, which were usually expelled completely with the fetus, were seen in the amnion. In many cases, this tissue contained thickened and edematous areas or was edematous throughout its entirety. It was often straw-colored and sometimes decidedly icteric.

TABLE I—The Incidence of Intranuclear Inclusions in Organs from Aborted Fetuses, the Result of Equine Virus Abortion

Organ	No. of specimens examined	No. in which inclusions were found	No. in which inclusions were not found
Liver	31	31	0
Lung	31	30	1
Spleen	9	9	0
Thymus	7	6	1
Lymph node	2	1	1
Peyer's patch	1	1	0
Tongue	1	0	1
Pharynx	2	0	2
Esophagus	4	0	4
Stomach	5	0	5
Small intestine*	9	0	9
Large intestine	2	0	2
Larynx	1	0	1
Trachea	5	0	5
Bronchus	2	0	2
Kidney	16	0	16
Ureter	1	0	1
Bladder	7	0	7
Hepatic duct	1	0	1
Umbilical artery	1	0	1
Testicle	5	0	5
Ovary	3	0	3
Fallopian tube	1	0	1
Uterus	4	0	4
Vagina	1	0	1
Mammary gland	1	0	1
Teat	1	0	1
Skin	1	0	1
Heart	12	0	12
Thyroid	11	0	11
Adrenal	6	0	6
Pancreas	7	0	7
Pituitary	3	0	3
Pineal	3	0	3
Brain	5	0	5
Chorion	8	0	8
Amnion	5	0	5

*Exclusive of Peyer's patch.

HISTOPATHOLOGY

The most significant microscopic lesions of equine virus abortion were confined to the liver and lungs; however, certain lymphatic organs also were involved. In some cases, when macroscopic examination did not reveal the presence of lesions within these organs, histopathologic changes were found sufficiently characteristic to justify a diagnosis of virus infection.

Liver.—Microscopic sections of the liver exhibited marked hyperemia accompanied, in some instances, by hemorrhage. Varying degrees of fatty degeneration were also seen in the hepatic cells and, in many cases, the interlobular connective tissue was more prominent than normal. Small areas of focal necrosis were present in mounted liver sections (fig. 2). These were usually intralobular in position and their location varied from the border of the central vein to the periphery of the lobule. These foci of necrosis varied in size, some being so small as to be barely perceptible at a magnification of 75 diameters, while others occupied the greater part of hepatic lobules. The majority were found somewhere between these two extremes. These areas were numerous or few, diffuse or discrete, depending upon the specimen under consideration. The typical lesion was a rounded area of complete necrosis with varying degrees of karyorrhexis and pyknosis present. Degeneration and destruction of the parenchyma of the liver was evidenced by the accumulation of cellular débris within the area. Typical intranuclear inclusion bodies were found in the hepatic cells at the periphery of the necrotic areas and in cells adjacent to them (fig. 3 and 4).

In some cases, similar inclusion bodies were found in the nuclei of the epithelial cells lining the interlobular bile ducts (fig. 5). In this location, the number of inclusions varied from one to many in a cross section of the bile duct. Occasionally, practically every cell in a cross section was seen to contain an inclusion body. The distribution of the inclusions within the bile duct epithelium was irregular and discontinuous as evidenced by one case, in particular, in which the section under examination contained several oblique sections of

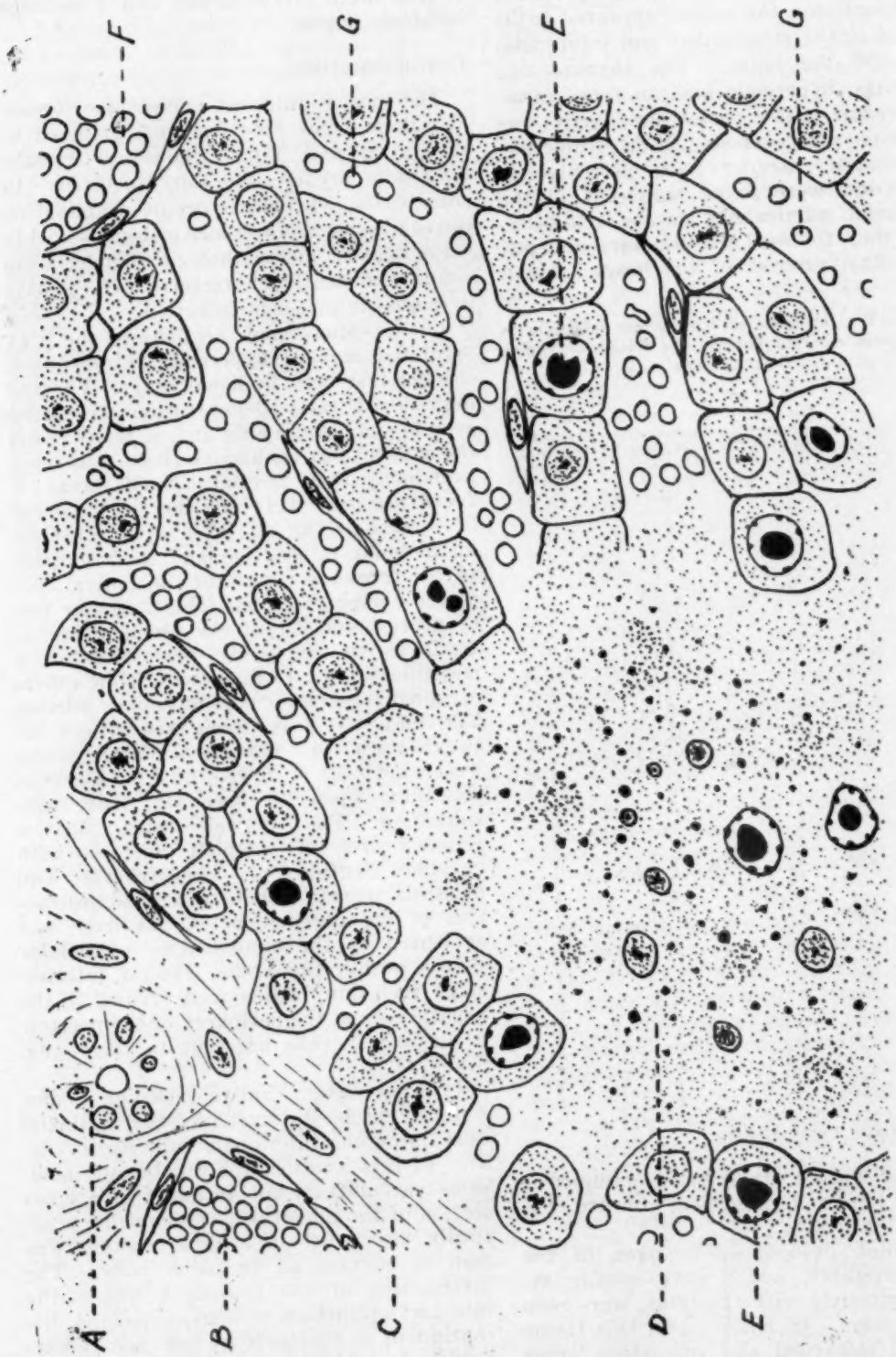


Fig. 4—Drawing of microscopic section of liver from an aborted equine fetus.
(A) Interlobular bile duct; (B) interlobular branch of portal vein; (C) interlobular connective tissue; (D) area of focal necrosis; (E) intranuclear inclusion body in hepatic cell; (F) central vein; (G) erythrocyte in hepatic sinusoid.

(A) Interlobular [illegible] intranuclear inclusion body in hepatic cell; (F) central vein; (G) erythrocyte in hepatic sinusoid.

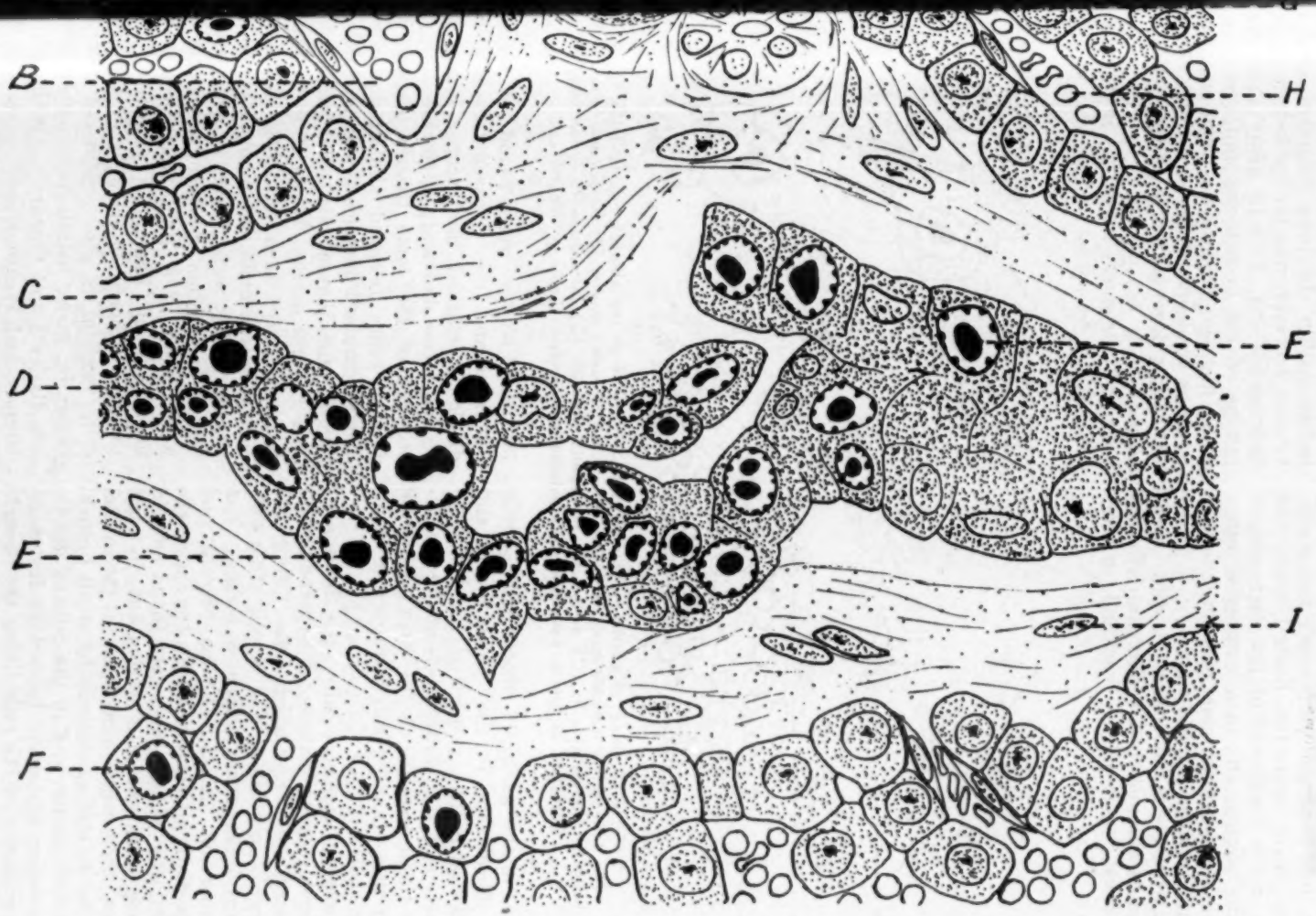


Fig. 5—Drawing of longitudinal section of interlobular bile duct of liver from an aborted equine fetus.
(A) Interlobular branch of hepatic artery; (B) interlobular branch of portal vein; (C) interlobular connective tissue; (D) bile duct epithelium; (E) intranuclear inclusion body in epithelial cell of bile duct; (F) intranuclear inclusion body in hepatic cell; (G) interlobular bile duct (cross section); (H) erythrocyte in sinusoid; (I) fibroblast.

a bile duct in its flexuous course between the hepatic lobules. Near one end of this duct, two separate microscopic fields contained many inclusion bodies, while the cells in the remainder of the duct present in this section, and in a number of other sections from the same paraffin block of tissue, revealed no inclusions.

Characteristic inclusion bodies were found in the nuclei of endothelial cells lining blood vessels of the liver and, in some cases, in the nuclei of smooth muscle cells and fibroblasts, in the tunica media and tunica adventitia, respectively, of the same vessels (fig. 6). Fibroblasts of the connective tissue capsule of the liver also were seen to contain typical, intranuclear inclusion bodies.

Lungs.—Microscopically, the lungs exhibited varying degrees of hyperemia and hemorrhage. Epithelial cells lining the bronchi, bronchioles, and alveoli often contained intranuclear inclusion bodies. The number of inclusion bodies present and their distribution varied with the specimens examined. Often, they were found only in a few areas within a section but, in some cases, they were numerous in the nuclei of the epithelium lining the small bronchi and bronchioles, and in the cells of the interalveolar septums. In certain instances, the majority of the cells lining the bronchi and bronchioles contained well-defined inclusions, and as many as 50 were counted in a single microscopic field of one bronchus. The most common location for inclusion bodies within the lung tissue of aborted fetuses, however, was the epithelium of the bronchioles (fig. 7). In many cases, the lumina of the bronchioles and bronchi in which inclusion bodies were found contained large or small quantities of cellular débris, indicating degeneration and destruction of tissue.

Lymph Organs.—Recently, intranuclear inclusion bodies were found in certain lymph organs from diseased fetuses which displayed marked microscopic lesions of equine virus abortion. A further study of sections of the same tissues prepared in former years revealed similar inclusions. Their combined incidence was as follows: spleen, nine, thymus, six, colic lymph node and Peyer's patch. While it is true that the number of such inclusions present in each case was small, two or more typical inclusion bodies were found in each section and, in one section of spleen, as many as six were found in a single microscopic field under the oil immersion objective. The thymus, although a member of the endocrine system, is also considered a lymph organ by many histologists, among whom are Bailey[12] and Cowdry[13]. While others, Bremer and Weatherford[14], state that the small cells of the thymus, designated thymocytes by some authors, are li

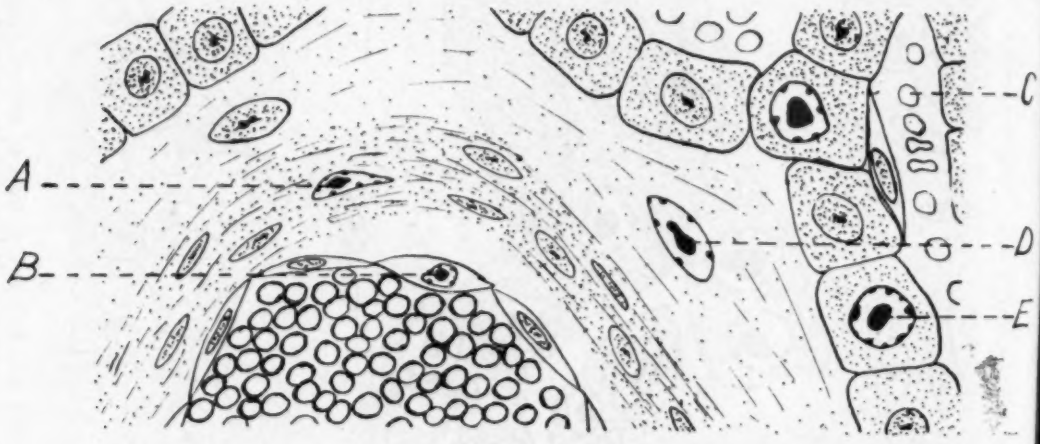


Fig. 6—Drawing of portion of blood vessel of liver from an aborted equine fetus. (A) Intranuclear inclusion body in smooth muscle cell of tunica media; (B) intranuclear inclusion body in endothelial cell; (C) erythrocyte in hepatic sinusoid; (D) intranuclear inclusion body in fibroblast of tunica adventitia; (E) intranuclear inclusion body in hepatic cell.

lymphocytes, Maximow and Bloom[15] emphatically state that these cells are morphologically identical with the small lymphocytes.

In all of these lymph organs, the majority of the cells which contained the inclusion bodies were believed to be reticular cells. In some cases, they may have been histiocytes (reticuloendothelial cells) and, in a few instances, cells believed to be lymphocytes or thymocytes contained inclusions. The outline of the cytoplasm of the cells was very evident in the spleen, particularly in the splenic corpuscles, many of which contained little normal lymph tissue (fig. 8).

Heretofore, reports from this experiment station[4 to 6] have indicated the presence of intranuclear inclusion bodies of equine virus abortion only in epithelial tissues (hepatic cells and biliary and respiratory epithelium). In liver sections of aborted fetuses supplied from this department's specimens, Anderson and Goodpas-

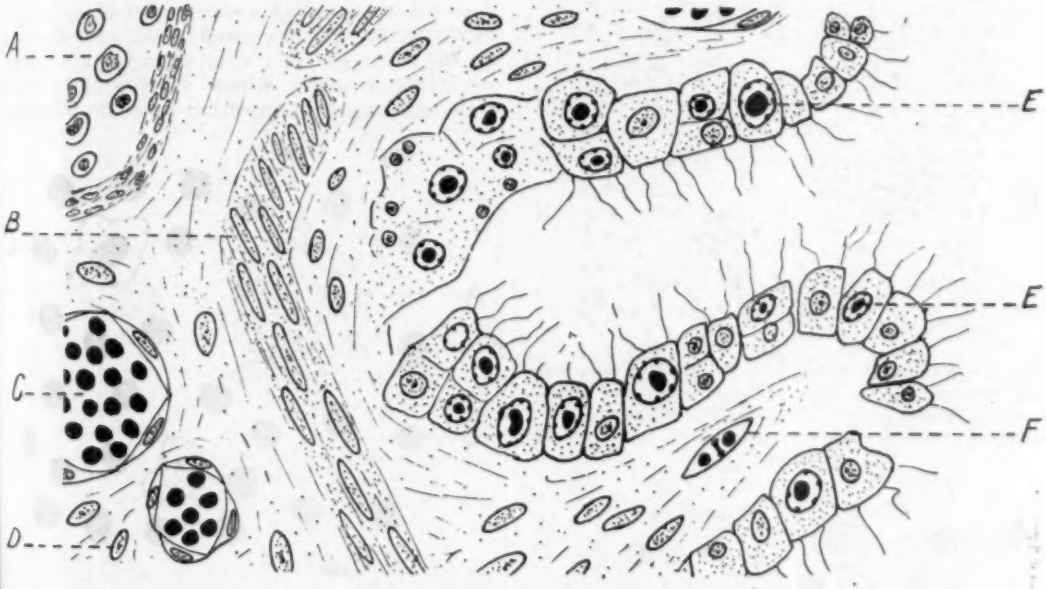


Fig. 7—Drawing of microscopic section of bronchus of lung from an aborted equine fetus. (A) Cartilage; (B) smooth muscle; (C) blood vessel; (D) fibroblast; (E) intranuclear inclusion body in respiratory epithelium; (F) capillary.

of the lymphatic tissue in which inclusion bodies were present was not always perceptible, making it difficult to determine the type of cell involved. The nuclei of all these cells in which inclusions were present appeared very similar to those of the epithelial cells of the liver and lung (fig. 9 to 12). In all cases in which the inclusions were found in the lymph structure, the organs were hyperemic or hemorrhagic in varying degrees. Degeneration and destruction of tissue were present as evidenced by cellular débris in areas in which inclusion bodies were found, not unlike those found within the lumina of the bronchioles and in the center of the necrotic foci of the liver. This destruction of tissue

ture[16] found inclusion bodies in endothelial cells, as well as in hepatic cells and the biliary epithelium. In attempting to propagate the virus of this infection, they also found intranuclear inclusion bodies in areas of focal necrosis in the livers and in the nuclei of heart muscle cells of newborn Syrian hamsters which were inoculated with the virus *post partum*. No lesions or inclusions were found in the lung tissue or in the biliary epithelium in the liver of the hamsters. These same workers[17] reported finding inclusion bodies in the epithelial cells of the human amnion in certain cases in which this tissue was grafted on the allantochorion of chicken embryos. Other lesions in the human fetal membrane de-

scribed by these workers were necrosis, ulceration, and inflammatory exudation.

The reticular cells[12, 14, 15, 18] of the lymph nodes, Peyer's patches, and spleen are of mesenchymal origin in the mammalian embryo, as are smooth muscle cells, fibroblasts, and endothelium; while the reticular cells of the thymus arise from the same embryologic germ layer as the parenchymal cells of the liver and the lining epithelium of the bile ducts and air passages in the lungs—the entoderm. With the exception of the epithelial cells of the human amnion described by Goodpasture and Anderson[17], inclusion bodies of this particular infection were not observed in tissues of ectodermal origin.

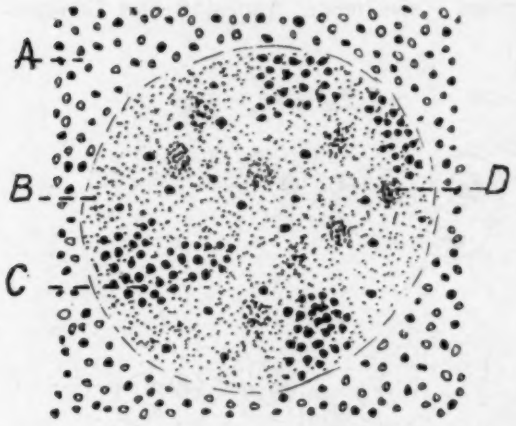


Fig. 8—Drawing of microscopic section of spleen from an aborted equine fetus as seen under low power. (A) Splenic pulp; (B) splenic corpuscle; (C) lymphocytes; (D) degenerated area with cellular débris.

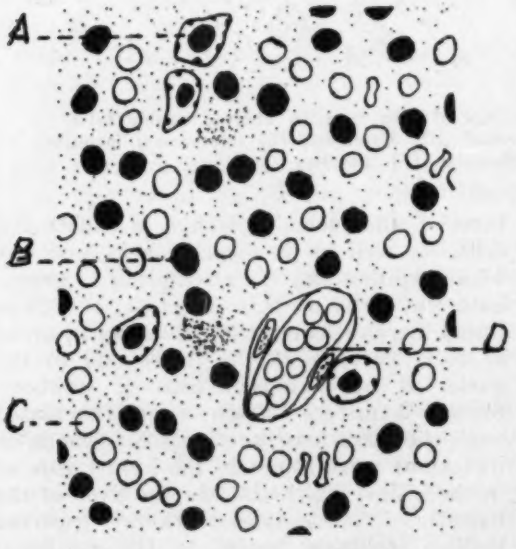


Fig. 9—Drawing of microscopic section of spleen from an aborted equine fetus as seen under high power. (A) Intranuclear inclusion body in reticular cell; (B) lymphocyte; (C) erythrocyte; (D) venous sinus.

MORPHOLOGY AND STAINING CHARACTERISTICS OF INCLUSION BODIES

The cytologist speaks of inclusions as nuclear and cytoplasmic bodies consisting of "accumulations of proteins, fats, carbohydrates, pigments, secretory granules, chromophil substance, and crystals" and considers them as "passive, lifeless, temporary constituents of the cell"[35]. The term has simply been appropriated by the virologist and applied to certain large, conspicuous bodies which develop in certain cells as a result of infection by some filterable viruses. Cowdry[39] states that if the term "x-body," employed by botanists, were applied to these peculiar structures, it would "make for simplification of terminology and be more rational." So far as the nature of these bodies is concerned, it has not been definitely determined as to whether they are the virus itself, either wholly or in part, or are cellular modifications brought about by the reaction of the normal cell structure to the presence of the virus. The latter view is perhaps the most widely accepted[19, 20, 21].

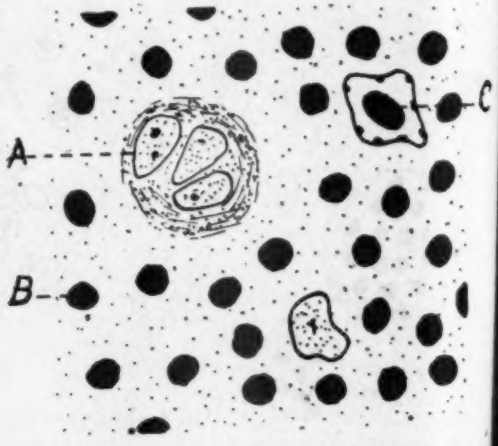


Fig. 10—Drawing of microscopic section of thymus from an aborted equine fetus. (A) Hassall's body; (B) thymocyte; (C) intranuclear inclusion body in reticular cell.

The inclusion bodies found in tissues of the aborted equine fetuses are typically viral in nature, as confirmed by leading virologists in this and other countries.

Although inclusion bodies were seen in sections of tissues fixed and stained by ordinary methods, a number of special histologic tech-

niques were utilized in this laboratory in an attempt to differentiate more completely the inclusions from surrounding cellular structures. The inclusions were easily demonstrated in tissues fixed in either Zenker's or Helly's (formolized Zenker's) fluid, whereas those fixed in 10 per cent formalin were stained more deeply with basic dyes and were shrunken and, hence, less conspicuous. Helly's fluid was the fixative of choice in that the nuclei appeared prominent and the inclusions large and well stained.

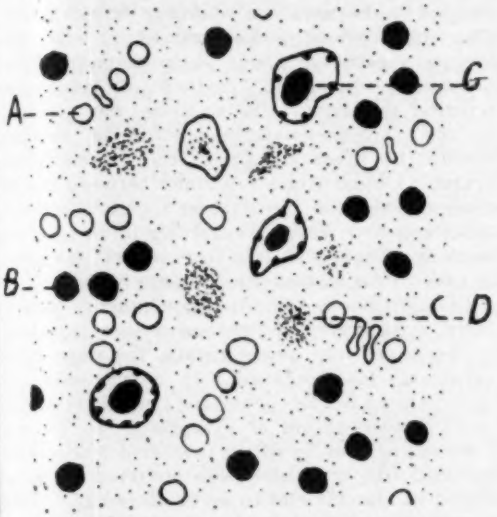


Fig. 11—Drawing of a microscopic section of a colic lymph node from an aborted equine fetus. (A) Erythrocyte; (B) lymphocyte; (C) intranuclear inclusion body in reticular cell; (D) cellular débris.

Normally, the inclusions were selectively stained by the acid dyes, but were less intensely stained than the acidophilic nucleolus or plasmasome. A method described by Hamilton[22] of applying eosin by burning it in alcoholic solution on the slide and counterstaining with methyl blue did not prove successful in our hands, as the acidophilic nucleoli (plasmosomes) and inclusion bodies were stained with the same intensity and it was difficult to distinguish the one from the other. In using the stain advocated by Page and Green[23] for demonstrating inclusion bodies of dog distemper, the differentiation that we desired was not produced. Castroviejo's[24] modification of the trichromic stain of Cajal was also used without success. Rosanilin violet and methylene blue were fairly satisfactory, particularly in lung tissue. Phloxine B proved to be superior to eosin for this purpose following staining with Mallory's alum hematoxylin[25]. A mixture of 25 cc. of 0.5 per cent aqueous solution of phloxine B and 75 cc. of 0.5 per cent eosin produced very beautiful sections after fixation of tissues in Zenker's fluid and subsequent staining with Mallory's alum hematoxylin[25]. Almost as good results were obtained by staining in alum hematoxylin after fixation in Zenker's fluid, and counterstaining with the following combination:

Phloxine B	0.4 Gm.
Ponceau xylidine	0.5 Gm.
Orange G	0.5 Gm.
Light green S.F.	0.2 Gm.
Distilled water	100.0 cc.

The following modification of the rapid trichrome stain described by Pollak[26] was found to be very effective:

Ethyl alcohol 50%	100.0 cc.
Phloxine B.	0.1 Gm.
Biebrich's scarlet	0.1 Gm.
Fast green FCF	0.1 Gm.
Orange G	0.1 Gm.
Aniline blue	0.1 Gm.
Phosphotungstic acid	0.5 Gm.
Phosphomolybdic acid	0.5 Gm.
Glacial acetic acid	1.0 cc.

The above mixture of stains was used after staining with alum hematoxylin. Formalin-

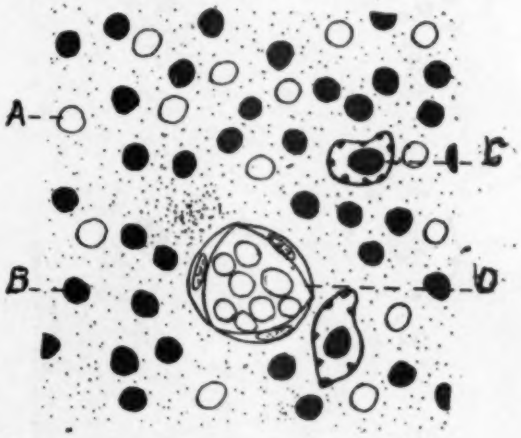


Fig. 12—Drawing of a microscopic section of Peyer's patch from an aborted equine fetus. (A) Erythrocyte; (B) lymphocyte; (C) intranuclear inclusion body in reticular cell; (D) small blood vessel.

fixed tissues stained more quickly than those fixed in Zenker's or Helly's fluid. Intranuclear inclusion bodies were stained red, the cytoplasm appeared violet or blue, and the nuclear chromatin was dark blue to almost black. Erythrocytes were orange, while collagen and hyaline were varying shades of blue-green.

For diagnostic purposes, one of the rapid techniques[25] employing dioxane was satisfactory for demonstrating these bodies, either after staining with the modified trichrome stain and alum hematoxylin, or hematoxylin and eosin. The morphology and texture of the intranuclear inclusions were equally as impor-

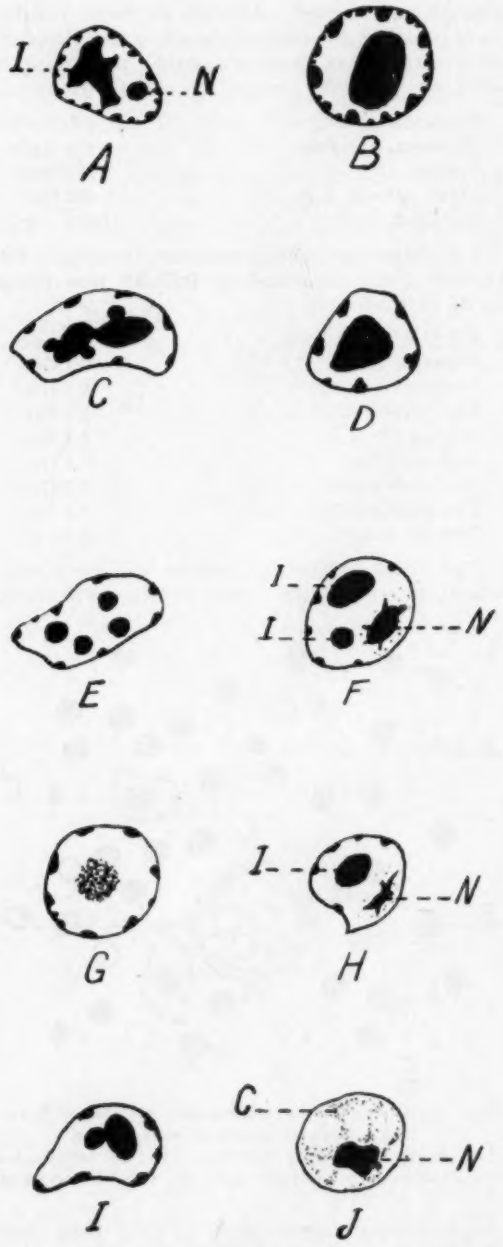


Fig. 13—Drawing of nuclei of liver cells containing various forms of intranuclear inclusion bodies.

(A) Large, irregular inclusion body, I, and nucleus, N; (B) large, oblong inclusion body with extreme degree of "beading" of basic chromatin on nuclear membrane; (C) inclusion body consisting of several fusing portions; (D) triangular-shaped inclusion body; (E) four inclusion bodies within a nucleus; (F) nucleus containing two inclusion bodies, I, and a nucleolus, N; (G) an inclusion body consisting of many fine, granular particles; (H) nucleus containing one inclusion body, I, and nucleolus, N; (I) two inclusion bodies fusing to form a single large body; (J) nucleus of normal liver cell, and nucleolus, N, chromatin granules, C.

tant as the staining reaction in their identification. The inclusions were not always round; in fact, about half of them were elongated or oval while others were roughly triangular. In some cases, two or more inclusions were observed in a single nucleus. It is probable that, under the action of the virus, the normal acidophilic staining chromatin of the nucleus increased in amount and converged to form the large inclusion body. In most cases, the inclusion appeared as a homogenously stained mass of material but, in a few instances, the mass seemed to be made up of many fine granules. The intranuclear bodies varied in size, the largest ones being about 6μ in diameter. The basophilic chromatin, instead of being distributed throughout the nucleus, was removed to the periphery and deposited in droplets within the inner margin of the nuclear membrane. A clear space remained between the inclusion body and the nuclear membrane which often appeared dilated, resulting in an enlarged nucleus. Figure 13 is a drawing of inclusions of several forms found in hepatic cells.

In addition to the nuclear changes, particularly in the parenchymatous cells of the liver where there was degeneration, the quantity of cytoplasm was reduced. In some cases, the cells whose nuclei contained inclusion bodies were almost devoid of cytoplasm. In the bile duct epithelium in which inclusion bodies were present, the cytoplasm was observed to be reduced in amount and to stain more deeply than normal with basic stains. In the bronchi and bronchioles of the lungs, the cells containing intranuclear inclusions were shrunken and stained more intensely with basic stains.

In a study of tissues from aborted fetuses of 31 cases of equine virus abortion, 23 of which were from the files of the Department of Animal Pathology previous to Jan. 1, 1945, and 8 of recent date which presented marked gross lesions, the results tabulated in table 1 were obtained.

SUMMARY

Equine virus abortion *(Salmonella abortivoequina)* is defined. A brief history of the disease, as first recognized in 1922, and a description of the symptoms, as seen at the Department of Animal Pathology, Kentucky Agricultural Experiment Station, are given, together with a word about its distribution in the United States and foreign countries.

The gross and histologic changes in equine virus abortion are described in detail. The gross lesions described in the aborted fetuses are: *(a)* multiple, small, grayish white to yellowish areas of necrosis in the liver; *(b)* hemorrhages on the heart, spleen, and lungs and congestion of the mesenteric and colic lymph nodes; *(c)* an

excessive amount of fluid in the thoracic and, occasionally, the peritoneal cavities; *(d)* edema of the lungs, thymus and, in some cases, the amnion. A single fetus may possess all of these changes, or only one or two of them may be observed.

Microscopic sections reveal small areas of focal necrosis of the liver, in the periphery of which are typical intranuclear inclusion bodies. Similar inclusions are described in the epithelium of the interlobular bile ducts and in the endothelial cells of blood vessels, as well as in smooth muscle cells and fibroblasts in blood vessel walls and the liver capsules. In the lungs, intranuclear inclusions were found in the epithelium lining the bronchi, bronchioles, and alveoli. Typical inclusion bodies were seen in a few cases in the spleen, thymus, lymph node, and Peyer's patch.

The morphology of the inclusion bodies and their staining characteristics are discussed. Although inclusion bodies were demonstrated by ordinary histologic technique, they were best seen after fixing in Helly's fluid and staining with a modified trichrome stain following alum hematoxylin. The nuclei which contained inclusion bodies appeared enlarged, with a clear space between the inclusion material and the displaced nuclear membrane, on the inner margin of which the basic chromatin was deposited in droplet formation.

A table is presented which gives the incidence of inclusion bodies in various organs of the aborted equine fetuses.

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LIVESTOCK HEALTH ODDITIES
CARELESS VACCINATION CAN CAUSE LIVESTOCK DISEASES. IN ONE STATE A BAD OUTBREAK OF ANTHRAX WAS CAUSED BY A FARMER WHO MISUSED A LIVE ANTHRAX VACCINE.
GRUB
A TEN MONTHS TRIP. . . THE HEEL FLY LAYS IT'S EGGS ON THE COWS HEELS. IT TAKES TEN MONTHS FOR THE JOURNEY THROUGH THE COW. WHEN THE HEEL FLY EMERGES FROM THE COWS BACK—THESE GRUBS CAUSE MILLIONS IN DAMAGE YEARLY.
HEEL FLY

—*Associated Serum Producers*

A Concise Investigation of Fowl Spirochetosis in Egypt

ZAKI MORCOS, M.V.Sc., F.R.C.V.S., D.V.H. (Eng.); OSMAN A. ZAKI, M.Sc. (Cairo), B.Sc. Hons. (Liverpool); and RAGHEB ZAKI, M.V.Sc. (Cairo)

Cairo, Egypt

FOWL spirochetosis is a disease of great economic importance. In this country, it is responsible for serious losses among the well-developed breeds of poultry. Although the mortality is not so high among Egyptian birds, possibly on account of some inherited immunity, it is exceedingly high among the imported foreign breeds. The hot climate and sandy nature of the terrain naturally favour the propagation of ticks which transmit the disease. Avian spirochetosis has been one of the serious obstacles to introducing foreign poultry for cross breeding, which is vitally needed to improve the size as well as the egg-laying capacity of the Egyptian breeds. It was of interest, therefore, to make this concise study of the disease.

1) ETIOLOGY, SYMPTOMS, AND POSTMORTEM EXAMINATION

Avian spirochetosis is caused by *Treponema anserinum*, which was first described by Sakharoff[16], who observed it in the blood of infected geese. The organism measures about 14μ with 5 to 6 coils. During the crisis of the disease (usually fifth to sixth day after infection), the blood is seen swarming with spirochetes, sometimes exceeding the number of red cells with tangle formation.

Various species of the fowl ticks of the genus Argus, and the fowl mite *Dermanyssus avium*, spread the infection. The tick is infective in all its stages. Infection passes through the egg. Artificial infection can be conveyed by subcutaneous, intramuscular, or intraperitoneal inoculation of infected blood. Ingestion of infected ticks or infected material is also infective.

Infected birds develop diarrhea, their temperatures rise to 43 C., and spirochetes appear in their blood in twenty-four hours. After three to four days, the temperature falls to 41 C., but the organisms continue to increase; later they aggregate into groups, and their movements become slower. At this stage, crisis occurs. The bird either dies or recovers. Sometimes a chronic disease develops, lasting about two weeks and followed by death. The symptoms, which are not very characteristic, are those of ill-health in birds, namely, dullness, thirst, ruffled feathers, loss of appetite, emaciation, drowsiness, disinclination to move, drooped head, and finally paralysis.

The postmortem changes are found in the spleen and liver. The spleen becomes four to six times its normal size. The liver is congested and friable with biliary stasis.

2) SUSCEPTIBILITY

Review of Literature.—Sakharoff[16] infected geese by subcutaneous inoculation of spirochetal blood, but failed to infect 2 pigeons and a sparrow. Gabritschewsky[6] stated that the disease was more benign in ducks than in geese. Marchoux and Salimbeni[10] found that young fowl, geese, doves, and sparrows were susceptible. Pigeons showed rise of temperature, but no spirochetes could be seen in the blood. Guinea pigs and monkeys were found refractory. Levaditi and Lange[9] infected young rabbits by intravenous and intraperitoneal inoculation of infected fowl's blood. Nuttal[15] induced fever on inoculation of pigeons but no spirochetes could be seen in their blood.

Experimental.—Geese and ducks developed acute cerebral symptoms after intramuscular inoculation of infected blood. Spirochetes were seen in abundance in the peripheral blood twenty-four hours after infection. All birds died within four to five days.

Turkeys and sparrows developed the disease and the spirochetes were seen in their blood forty-eight hours after infection, but they spontaneously recovered.

Pigeons were largely refractory. Only 1 pigeon out of 8 could be infected, and the spirochetes were seen in its peripheral blood in small number and did not take the stain readily. The bird died nine days after inoculation.

Guinea fowl, doves, kites, crows, and hawks were all refractory.

Guinea pigs, rats, and mice were also refractory. Rabbits, however, proved less refrac

The authors are from the Department of Bacteriology of the Veterinary College, Fouad I University, Cairo, Egypt.

tory, since the spirochetes could be seen in their blood twenty-four hours after infection, but soon disappeared from the circulation.

3) MAINTENANCE OF VIRULENCE OF THE STRAIN

Review of Literature.—Various methods were used by different workers to keep the virulence of the spirochetes. Neiva[13] kept the organisms alive for forty days in defibrinated blood at 0 C., while Mayer[11] maintained the virulence by passage through canaries. Anderson[1] used to revive his strain by passage through *Argus persicus*. Sreenivasan and Sankaranarayan[17] added one part of 4 per cent sodium citrate to four parts of infected blood in the refrigerator, and the spirochetes were found alive for twenty days. Virulence was maintained by passage through fowl every three weeks.

Experimental.—During this investigation, defibrinated infected blood, as well as citrated infected blood (final concentration 0.4%) kept at 4 C., was first adopted to keep our strain going. This, however, proved unsatisfactory since the chicks inoculated from these materials ten days after storage in the ice chest developed a mild attack of the disease and recovered spontaneously after three days. We found it best to passage the strain into young chicks about 2 months old every three weeks. The infected chick was killed in the early stages of the disease, usually two days after infection, the blood collected aseptically, and allowed to clot. The serum was then separated and stored in the ice chest. This serum proved to be very rich in spirochetes which remained fully virulent for at least four weeks; but to be on the safe side, we used to passage it into chickens every three weeks. By this procedure, defibrination, or the addition of citrate, was avoided as it appeared to have some inimical effect on the spirochetes.

It must be emphasized that the blood should be collected from the chick in the early stage of the disease, since it was noted that if the chicks were sacrificed later during the crisis of the disease the spirochetes did not live as long. Evidently this phenomenon is due to the presence of spirochetocidins and lysins formed when the bird is allowed to live a few days more.

Fig. 1—Treponema anserinum in blood, stained by Fontana method (high power).

4) ATTEMPTED CULTIVATION

Review of Literature.—Noguchi[14] and Danulesco[3] both succeeded in cultivating *Treponema anserinum* using Noguchi's technique. Ungermann[18] cultivated various spirochetes in the presence of fresh, sterile, young animals' serums diluted with sterile saline or Ringer's solution heated at 58 C. for half an hour and immediately covered with a layer of sterile liquid paraffin. The medium was allowed to cool and then inoculated. Galloway[6] and Marchoux and Chorine (1931) cultivated *T. anserinum* on slants of coagulated white of egg, to which was added diluted rabbit serum after being heated

for one hour at 58 C. A drop of sterile, fresh rabbit blood, as well as a layer of sterile vaseline, was added before inoculation. Kligler, Hermoni, and Perek[7] cultivated the organism in Tyrode's serum, adjusted to pH 7.4 and sterilized by filtration.

Experimental. — Galloway's original method was tried several times without success, since examination of the inoculated tubes showed that the organisms did not increase in number, were sluggish, and finally disappeared altogether. But when the layer of vaseline was omitted, a rich culture could be obtained, thus demonstrating that Galloway's method of cultivation should be adopted aërobically. However, when subcultures were made, scanty growth took place which was not rich enough to serve for antigen preparation.

Similar results were obtained when the organism was grown in Tyrode's medium, using rabbit serum.

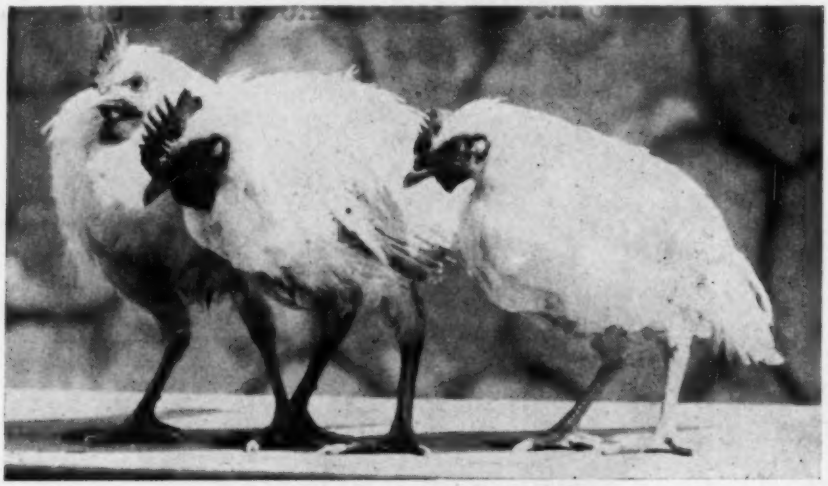

Fig. 2—Acute spirochetosis in chickens.

5) TREATMENT

Various therapeutic agents were tried for the treatment of the disease. Each drug was tested on 10 chickens of the same weight and age. The birds were infected with 0.25 cc. of infected blood inoculated intramuscularly. Two days later, when their blood was examined and found positive, treatment with the particular drug was commenced. An equal number of birds was also infected similarly but left without treatment to serve as a control.

The following drugs were tested.

Organic Arsenicals. — Myosalvarsan (Bayer) was administered intramuscularly in two doses of 0.01 Gm. per kilogram of body weight, given on two successive days. All the treated birds survived; their blood was negative for spirochetes after the second dose and remained so for ten days. The control birds developed the disease and 50 per cent of them died in seven days; the remainder were still positive, became emaciated, and were destroyed.

Spirocid (Bayer).—Two doses of 1 Gm. each per kilogram of body weight were given by mouth on two successive days. This drug had a marked therapeutic effect since the blood of the treated birds proved negative after the first dose.

Atoxyl (Soamin, Arsamin, etc.).—Two doses of 0.06 Gm. each per kilogram of body weight were given intramuscularly on two successive days. This compound also proved quite as effective as the previous two drugs.

Arrhenal (disodium methyl arsenate).—Two doses of 0.07 Gm. each per kilogram of body weight were injected intramuscularly on two successive days. This drug had no therapeutic effect since it did not alter the course of the disease and the treated birds behaved more or less like the controls.

Sulfonamide Derivatives.—Sulfanilamide, sulfapyridine, sulfathiazole, and sulfadiazine were tested. The total dosage of each was 0.4 Gm. per kilogram of body weight together with an equal amount of sodium citrate administered by mouth. On the first day, 0.1 Gm. was given and then 0.0 Gm. was given on each of four successive days, the dose being divided into two portions given morning and evening.

These drugs, on the whole, had no effect whatsoever, since the course of the disease was not affected by their administration. The number of spirochetes in the blood of the treated and untreated birds was almost the same, and the percentage of mortality was also more or less the same.

Penicillin.—Six thousand units of penicillin were given intramuscularly three times daily for three successive days, with the same disappointing result as with the sulfonamide drugs.

In view of the fact that there were a certain number of survivals among the untreated controls, the authors depended mainly upon the behaviour of the spirochetes in the blood when evaluating the different drugs tested, rather than considering the ultimate number of survivals.

6) IMMUNIZATION

Review of Literature.—Gabritschewsky[5] prepared spirochetal antiserum by immunizing horses with infected goose blood. He claimed that such serum conferred passive immunity for about three weeks. Dschunkowsky and Luhs[4] obtained protective serum from recovered geese, which they claimed to be so potent as to protect against the disease in doses of 0.01 cc. Marchoux and Salimbeni[10] prepared a synthesized vaccine by mixing virulent blood with spirochetal antiserum. Aragao[2] prepared a vaccine by formolizing infected fowl's blood and claimed that 1 cc. given subcutaneously conferred immunity and that such vaccine retained its efficiency for thirteen months. Morcos[12] prepared a vaccine by emulsifying the liver and spleen of infected birds twenty-four hours later. Sreenivasan and Sankaranarayan[17] immunized fowl by infecting them with spirochetal blood and then treating at the height of the disease with sulfarsenol.

Experimental.—The authors succeeded in preparing potent immune serum from geese and goats. Geese were infected with spirochetal blood and then treated forty-eight hours later with Myosalvarsan. Hyperimmunization was made by injecting three doses of 0.1 cc. of spirochetal blood at weekly intervals. Ten days after the last injection, the birds were slaughtered and the blood collected aseptically, allowed to clot, and the serum separated and stored in the ice chest. Goats were immunized by injecting four doses of 0.5 cc. each of spirochetal blood at weekly intervals. Ten days after the last injection, 250 cc. of blood were drawn from the jugular vein and the serum separated in the usual way. Goose and goat serums proved equally effective in protecting against infection. One cc. of either serums protected a fowl when given subcutaneously twenty-four hours before infection. The period of passive immunity conferred by these serums lasted for three weeks. This could be demonstrated by the following experiment: Ten chickens were each inoculated with 1 cc. of immune serum. At weekly intervals, 2 chickens were tested with spirochetal blood and their blood examined. The birds were found immune for the first three weeks only after which they contracted the disease on inoculation with spirochetal blood.

It was of interest to note that although the serum had a marked prophylactic effect, yet it had no therapeutic value, whatsoever, on the course of the disease once the organisms had appeared in the circulation.

Various methods were adopted for active immunization and all proved quite effective. These were as follows:

1) Vaccines.—*a*) Infected, citrated fowl's blood diluted 1:4 in saline and 1 per cent carbolic acid added as preservative.

b) Infected liver emulsion diluted 1:4 in saline and 1 per cent carbolic acid added as preservative.

Fig. 3—(Left) Marked enlargement of the spleen during the height of the disease. (Center) The spleen gradually regains its normal size after treatment. (Right) Normal size of the spleen in a healthy chicken.

c) Infected spleen emulsion diluted 1:4 in saline and 1 per cent carbolic acid added as preservative.

d) A mixture of *a*, *b*, and *c* in equal parts.

The vaccines were kept in the ice chest for ten days before use. Two doses of 0.5 cc. each of each vaccine were injected subcutaneously at five-day intervals into batches of 10 chick-

ens. Six months after the second dose, the birds were tested for immunity. The test dose was 0.25 cc. of spirochetal blood. None of the vaccinated birds showed symptoms, and their blood was negative while the controls succumbed to the disease.

It is thus seen that such vaccines possess a high immunizing power which lasts for at least six months.

2) Injection of immune serum followed by spirochetal blood on the next day, *i.e.*, active immunization under cover of passive immunity.

3) Injection of spirochetal blood followed on the third day by treatment with any of the effective arsenical compounds, *i.e.*, infection and treatment at the height of the disease.

The last two methods proved to confer a solid active immunity comparable with that acquired by tissue vaccines and can thus be recommended for combating natural outbreaks of the disease.

CONCLUSIONS

1) The avian spirochete was found to live longest in serum of birds, collected aseptically at the early stage of the disease. It lived fully virulent for four weeks in the ice chest. All other means failed to keep them as long.

2) No successful means of cultivation could be encountered. However, the organisms appeared to multiply best under aërobic conditions. On subculturing, virulence as well as multiplication ceased, indicating the possibility of a missing factor. Culture *in vivo* must always be resorted to by passaging into chickens.

3) Arrhenal, sulfonamides, and penicillin have no curative effect in avian spirochetosis. On the other hand, myosalvarsan, atoxyl, and spirocid are almost specific as curatives and have the further advantage of serving as tonics.

4) Carbolized tissue vaccines, as well as infection followed by treatment with arsenicals, or immune serum followed by infection, all proved to confer solid immunity.

5) Immune serum possesses a marked prophylactic value, but has no therapeutic effect.

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The Relation of Animal Diseases to Public Health

JEROME J. SIEVERS, M.D., M.S.P.H.

Springfield, Illinois

IS NOT often realized that man's interest animal diseases is not only confined to ose which are transmissible to him, caus- g illness and death directly, but also is ncerned with those diseases peculiar to e animal alone, which by their economic fect upon the supply and cost of animal oducts may affect man's health and hap- ness. Nor is it yet too well established the minds of all that today's conception good public health goes far beyond a ere freedom from certain communicable seases; that modern public health en- mpasses a goal of achieving for each in- vidual a positive feeling of well-being hich is highly dependent upon adequate iet, good nutrition, and proper clothing. This broadening of the emphasis of pub- health activity did not come about by ere chance, or by the simple decision of resent day health workers to expand their pheres; on the contrary, it was made pos- ble by the accomplishments of their prede- ssors in both human and veterinary pre- ntive medicine who, by their research, ccumulated much information on the uses, detection, and prevention of the mmunicable diseases of both man and nimal. These men, notwithstanding the spicion, abuse, and even physical danger which they were often subjected, suc- eeded in gaining the general adoption and pplication of modern methods for the con- ol of these diseases. Were it not for the irtual elimination of such diseases as allpox, cholera, typhoid, and yellow fever, e health officer of today would have little me to interest himself in some of the ewer aspects of public health, such as nu- ition, mental hygiene, cancer control, and edical care. Were it not for the virtual imination of bovine tuberculosis from th man and cattle, the veterinarian and e health officer would not now find it pos- ble to turn their attention to programs for the control of brucellosis and undulant fever.

It must be remembered, however, that in so far as some diseases are concerned, we have gained only a superiority but have not as yet achieved a complete conquest. In this country, there are still a few who, through ignorance or indifference, refuse to provide themselves and their children with the available protection against smallpox and diphtheria, and in other parts of the world, economic conditions and the lack of health facilities have permitted these diseases to continue unchecked. With the shortened lines of communication afforded by the development of air travel, the possibility of the introduction of disease from without has grown and increasing vigilance is necessary to prevent their spread in this country, just as continued efforts are required to come even closer to the complete elimination of these diseases from the residium still present here in the United States. Communicable disease control, while not the only, or most dominant, activity of health departments, still remains an important function which must always be maintained at a high level of efficiency.

In the same manner, the diseases of animals which are transmissible to man, the human diseases spread by animals or animal products, and the animals which act as passive carriers of disease organisms, still are of tremendous importance to public health, even though we now recognize that we have an increasing concern with other forms of animal pathology.

Of all the diseases of animals, none was more important than bovine tuberculosis. As there was apparently no tuberculosis among the descendants of the Spanish Longhorn cattle in the southwestern part of the United States and Central and South America, the disease probably was introduced into the America's through the importation of fine beef and dairy cattle. The disease has appeared among cattle of all parts of the world, wherever tubercle bacilli have been carried to them, but it was not until the tuberculin test became available

The author is chief of the Division of Communicable Diseases, in the Illinois Department of Public Health, Springfield.

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that the true incidence and distribution of tuberculosis among cattle could be determined. By 1901, the incidence of tuberculosis among cattle in certain states of this country varied from 4 to 50 per cent. Not much over twenty years ago, the daily list of surgical operations in the large hospitals in the country was made up of a goodly proportion of operations for the removal of tuberculous glands of the neck in children. This particular form of the disease was largely due to infection with the bovine type of tuberculosis, contracted by drinking unpasteurized milk from tuberculous cows. There is scarcely a medical graduate of the last ten or fifteen years who has even seen an operation of this type, for the most audacious undertaking to control tuberculosis among animals and man in the entire history of the world began in the United States in 1917, and it has resulted in the only truly successful demonstration of controlling the disease. The program was of such magnitude, and has met with such success that, for the first time, man can visualize the complete eradication of the disease in animals and its resultant reduction in man. As of Jan. 1, 1941, every one of the 3,071 counties in the United States had been accredited as tuberculosis-free. Truly, it has been proclaimed as "man's greatest victory over tuberculosis," and the credit for this achievement is properly due to the veterinary profession! The veterinarian's program has pointed the way for the control of tuberculosis in man; this disease can be detected in persons in the same manner as in animals, and other phases of examination now available determine the extent of the disease and its infectiousness. At this point, while the veterinarian promptly solves the problem by slaughter, there are for man less drastic, but equally effective measures—namely, isolation, treatment, and education.

Man's debt to the veterinarian does not stop with tuberculosis alone, for all indications point out that the successful control of undulant fever in human beings probably will be achieved only when the programs for the control of brucellosis in cattle and swine become fully implemented. Transmitted to man by handling infected cattle and swine, and by drinking unpasteurized milk from infected cows, this disease is without doubt much more extensive than is commonly recognized. While not causing as high a percentage of deaths as tuberculosis, it is the cause of much chronic ill-health. The difficulty of diagnosis in the later stages and the lack of effective treatment make it a highly important public health problem today. Despite all the medical research on undulant fever, we still look to the veterinary profession for its ultimate conquest.

The third of this triad of animal diseases most important because of their transmissibility to man is rabies. While primarily an infection of the canine species, it may affect any of the warm-blooded animals and, although usually transmitted by the bite of an infected dog, the farmer and stockman are often exposed when handling cattle and horses which have contracted the disease from a rabid dog. Ingestion of the rabies virus is not dangerous unless lesions are present in the mouth or throat, because the gastric juice quickly destroys the virus. While infection by means of the milk from cows suspected of having been exposed to rabies is exceedingly rare, it is nevertheless advised that all such milk be thoroughly pasteurized or boiled. Once rabies develops in man, it is invariably fatal, as there is no cure for the disease. In 1936, there were ten human cases of rabies in Illinois, and there has been an average of more than two cases each year since then. The public health significance of rabies is not confined to the fatal cases alone, for the estimated cost of manufacturing and administering rabies vaccine to citizens of this state, who have been exposed to this disease, exceeds $100,000 per year. When the cost of valuable domestic animals which have to be destroyed because of rabies infection is added, it can be seen that man pays a high price for the privilege of allowing uncontrolled dogs to run at large.

There are many other diseases of animals which may affect man by direct transmission but, in comparison to the three diseases named, their importance is lessened by the relatively few cases that occur annually. Anthrax, however, has a significant public health connotation because it was the first disease of man and animals shown to be caused by a microörganism, and it was the first disease against which a bacterial vaccine was effective. Were it not for Pasteur and his work with animal diseases, the whole germ theory of disease, upon which modern medical science is founded, still might be shrouded in mystery, and the tre

mendous progress of the past seventy-five years remain to be achieved. During the past twenty-five years, there has been an average in Illinois of approximately 1.6 cases of anthrax per year. The disease in man is primarily an industrial hazard of workers in hides, hair, and wool. However, as the anthrax bacillus in its spore stage is among the most resistant of pathogenic bacteria, the disease is also an increasing agricultural hazard. Pastures in which infected cattle have roamed may remain contaminated for years and may prove fatal to stock turned to graze thereon. The city dweller, too, may be exposed to anthrax through the medium of shaving brushes made from bristles imported from abroad and not properly sterilized. The United States Public Health Service is constantly on the alert as to the source of the hair from which shaving brush bristles are made and many cases have been traced to brushes imported from Japan.

Some diseases of animals are transmitted to man indirectly, or through an intermediate vector. Of increasing importance in recent years has been equine encephalomyelitis, a disease caused by a filterable virus. First recognized as a separate entity in 1930, although no doubt previously confused with other maladies, this disease is found naturally in horses and mules; there is probably a reservoir of the virus in certain birds, and infection in both man and animals takes place through the bite of infected mosquitoes. Several widespread epizoötics of equine encephalomyelitis have occurred in various parts of North America and each epizoötic in horses has been accompanied by human cases. An important aspect of this disease has been its resemblance to human encephalitis and poliomyelitis. The fairly satisfactory evidence that the so-called St. Louis type of encephalitis of human beings is transmitted by the mosquito is largely the sequel of research on equine encephalomyelitis.

Actinomycosis is also a disease of animals, particularly cattle, which can occur in man. The direct transmission of the disease from animal to man has never been established, however, and while the animal may act as a carrier of the fungus, man probably contracts the disease through contact with infected straw or vegetation.

Improved bacteriologic methods of the last few years have enabled physicians to show that some hitherto obscure disease conditions, formerly known as "food poisoning", or "ptomaine poisoning" are, in reality, infections caused by the Salmonella group of bacteria, which are natural animal pathogens, producing in the animal puerperal fever, diarrhea, septicemia, and the like. Meat from infected cattle, hogs, sheep, fowl, and even eggs, have been responsible for large numbers of outbreaks of food infection in man. A natural reservoir of these organisms probably exists in rats and mice. The prevention of food infection calls for wholesome food, kept clean, manipulated as little as possible, and eaten in as fresh condition as possible.

Passing briefly over the parasitic diseases of animals, such as trichinosis and pork or beef tapeworm, we must give some consideration to those human diseases which may be spread through infected animal products, particularly milk and cheese. Here, the animal is usually entirely innocent, for man serves as the natural reservoir of the infecting organism. Mastitis of cows is occasionally due to infection of the cow by a human carrier of the *Streptococcus epidemicus*. The disease is then spread by the infected milk back to man, producing the condition known as septic sore throat, which is distinguishable from scarlet fever only by the fact that it does not cause a rash. The economic loss of the commonly prevailing type of bovine mastitis caused by *Streptococcus agalactiae* is immense, as the incidence of this type of mastitis is high and there is consequent serious interference with milk supply.

In addition to septic sore throat, there are four other diseases, primarily human in origin but to which certain animals are susceptible. They are of importance because infected animals may pass them back to man. They are diphtheria, scarlet fever, smallpox, and tuberculosis of the human type. The incidence of smallpox and human tuberculosis in animals is so low today that they no longer constitute a serious public health problem. Scarlet fever and diphtheria are very important, however, as there are many human carriers of the causative agents of the disease, who, because of the absence of signs of clinical illness, are unaware that the organisms may escape from their noses and throats to infect the animals with which they work. Therefore, the health of the animal handler may often

be as important as the health of the animal.

In the last group, we come to those diseases for which the animal is a passive carrier of the organism. Botulism, a disease of high fatality, is caused by a toxin produced by *Clostridium botulinum*. The organism is in itself harmless to man, but the highly virulent toxin is usually ingested in food which has supported the growth of the bacteria. The spores of *Cl. botulinum* are present in the intestinal tract of certain animals not showing signs of illness and the widespread distribution of these spores calls for the utmost care in the preservation and handling of foods, especially those which are packed at home.

Tetanus and gas gangrene are also important diseases, especially from a military standpoint. The soil of many countries, where there has been an extensive use of animal fertilizer, is heavily seeded with the spores of the causative organisms of these diseases, for the natural habitat of both is the intestines of herbivorous animals. Nor is tetanus unimportant to civilians, particularly farmers and dairymen, into whom the spores may be introduced through small wounds. While the military forces have subdued this disease through the use of preventive inoculations, there has been an average in Illinois of about 50 human deaths from tetanus during each of the preceding twenty-five years.

There are also many diseases which occur in native wild rodents, particularly rats and rabbits, but which may be transmitted to man by inoculation or through an intermediate insect vector. The most important of these in Illinois are tularemia, a disease of rabbits which man contracts directly by handling the infected animal or, occasionally, through the bite of an infected tick; and Rocky Mountain spotted fever which has a natural reservoir in wild rodents and is also transmitted to man by the wood tick and dog tick.

After this somewhat dismal picture of the dangerous possibilities of the relation between man an animal, it is only fair to point to the credit side of the ledger and to the rôle of animals in maintaining man's health.

Animals provide a large percentage of man's food in the form of meat and dairy products. While many substitutes for animal protein have been suggested, meat still constitutes the most desirable and the most available form. One has only to remember the feverish counting of red points during the recent days of rationing to realize that the general public feels its dependence upon animals, even if it is not consciously acknowledged. The cow has aptly been called the "foster mother of the world," for it has been estimated that in the United States there is 1 milk cow for every six persons. Certainly, modern civilization has developed a use and a need for milk which would make catastrophic any serious or prolonged interference with the milk supply. Leather and wool still make up a good percentage of man's clothing and without these, cotton and synthetic fibers could not supply the need nor the desire.

Sick man turns to well animals for drugs and medicine. Insulin, which enables the hundreds of thousands of diabetics to maintain a normal life, is an animal product, as are thyroid extract and the lifesaving drug, adrenalin. The guinea pig, the rabbit, and the dog are extensively used in research in human diseases, and the horse is the source of antitoxins and serums which have saved many a life.

Man's task is lightened by the horse and the mule, while companionship and protection are provided by the dog.

Man's debt to animals is great, and as Thoms G. Hull has put it—"The progress of many from cave shelter to penthouse has been influenced constantly by the lower animals. It is human nature to take credit for all desirable attainments, to refuse responsibility for the undesirable. Man can pride himself, therefore, on the wisdom of his ancestors, going back as far as the 'stone age', who brought under domestication various animals. Because of that, his ascent from a savage state was hastened—he was assured both bountiful larder and plentiful labor; the excess food supply not required for home use was a source of barter, and the emancipation from the heaviest burdens of labor allowed time and energy for trade, commerce, and travel. That was only the beginning, however. Animals proceeded to change the frontiers of nations, to crown and uncrown kings, to dictate the religious practices, and to cause many a diplomatic headache; they have left a mark on architecture, on landscapes, on style of clothes; they have sent to death untold millions of people and have saved from death other millions."

Gleanings from Committee Reports

(The committee reports will be presented at the 83rd Annual Meeting in Boston, August 19-22, 1946.)

Education. — The Council on Education, through an inspection committee, has visited seven veterinary colleges during the past year. All schools report many more students have applied than can be accepted for adequate teaching, a large majority of the applicants being men who have served in the armed forces. The importance of encouraging members of every teaching staff to do research work is stressed.

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Public Relations.—Diseases of animals have always been important to livestock producers because they can limit or inhibit the raising of farm animals, unless the diseases can be adequately controlled. Because the veterinary profession has established an enviable record in keeping disease losses at a low figure, the public relations program has been a means of carrying this information back to livestock owners and to the consumers of foods of animal origin.

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Nutrition.—The livestock feed situation is worse now than at any time during the war, and there is little chance for improvement in the United States until foreign countries are again producing much more food and feed for themselves. To produce livestock economically, only healthy and efficient animals should be retained in the herds and flocks.

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Rabies.—The Committee endorses the rabies-control plan published in the JOURNAL of May, 1946. It suggests that further steps be taken by a group which should include representatives from the American Medical Association, American Public Health Association, U. S. Public Health Service, U. S. Live Stock Sanitary Association, U. S. Bureau of Animal Industry, American Animal Hospital Association, and the AVMA.

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Parasitology.—The prevalence of "barn itch," chiefly caused by mange mites, is deplored by the Committee. A survey in New York and adjacent states indicates that, in many communities, it is 100 per cent more prevalent now that it was a year ago. A plan for treatment and control which has been successful where applied is described in the report.

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Food Hygiene.—An outline for a food inspection code was drawn by the Committee and published in the JOURNAL for January, 1946. This was followed by a sample code in the June JOURNAL. Efforts are now being directed toward drawing a set of plans for a model, small meat packinghouse with facilities for handling all species of food animals.

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Milk Hygiene.—A suggested manual of instruction for the physical examination of dairy animals is presented in the report of the Committee, which also stresses the importance of such examination and the need for more activity by veterinarians in this field of work. Encroachment will again appear unless more interest is shown within the profession.

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Brucellosis.—The objective of any disease-control plan must be a herd of disease-free animals, and the Committee believes that to this end the agglutination test is our most potent weapon against brucellosis. Vaccination of calves, and in some cases of adult animals, undoubtedly is another potent weapon, but as an adjunct to the testing program—never as a substitute for it. Wholesale calfhood vaccination at the expense of the government is deplored.

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Diseases of Dairy Cattle.—Favorable results following the use of DiSulfalac in more than 150 cases of respiratory troubles in calves and cows are reported, as are good results from the use of sulfamerazine in numerous cases of calf pneumonia and of shipping fever. These two products, along with a system of raising calves on nurse cows, provide the veterinarian with means of reducing the death loss in dairy calves.

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Postwar Planning.—Great need exists for a public relations officer among veterinarians, in the opinion of this Committee. The possibility for professional advancement from this type of activity deserves extensive study. Extension veterinarians at present spend approximately one fourth of their time with veterinarians in field practice.

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Diseases of Small Animals.—As additional information on encephalitis, hysteria, and convulsions becomes available, the complexity of the problem takes more definite shape. Neither prophylactic nor curative treatment is effective in controlling this group of diseases.

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Research Council.—The number of young veterinarians who have expressed interest in obtaining Veterinary Research Fellowships has shown a definite increase. Projects have been drawn up, and funds are becoming available, so that more veterinary research may be initiated in the near future.

Small Animal Surgery in a Mixed Practice

J. H. KRICHEL, D.V.M.
Keokuk, Iowa

PROPER PREPARATION of the surgical patient is as important as the operation itself. Except in minor or emergency operations, it is best to have the patient the day before operation. Patients should be examined to determine if they are good surgical risks; fecal and blood examinations may be indicated. The surgical area is clipped and cleansed, an enema is given, and the patient fed lightly, if at all, the day prior to operation.

Where possible, I prefer to do the surgery in the forenoon. At this time, I seem to accomplish work with greater ease and am able to do a better job. Ample time is allowed to properly observe the postoperative patient during working hours, and if additional or emergency treatment is necessary, it may be provided without the loss of sleep as is frequently the case where operations are scheduled in late afternoon or at night.

About thirty minutes before the operation is scheduled, an injection of morphine and atropine is given, the field of operation is shaved, and then painted with some good antiseptic. After the patient is placed on the operating table, nembutal or pentothal sodium is injected into the radial vein until anesthesia is complete; this is determined by absence of the carpal reflex. In older dogs and for cesarean section, ether is preferred. In the cat, I use nembutal intraperitoneally or intravenously and, at times, ether is the anesthetic of choice.

In tonsillectomy, it is well to give the nervous patient a general anesthetic. In the average case, procaine infiltration of the tonsils, following the usual preanesthetic injection of morphine and atropine thirty minutes prior to operation, will allow the surgeon to do his work properly and with dispatch.

In dentistry, most cases can be easily handled for scaling of tartar and minor extractions following injections of morphine and atropine, but in major dentistry, follow such injections with nembutal in younger dogs and with ether in older patients. In the cat, ether or nembutal is used.

Lancing abscesses and minor surgery, such as trimming wire cuts and lacerations, as well as small suturing operations, can be completed through use of morphine and perhaps local injections of procaine or applications of topical anesthetic solutions to the wound margins. Removal of Harder's glands may also be done in like manner.

Abdominal incisions are usually sutured with gut (chromic) in the peritoneum and fascia; stainless steel wire is used for the skin suture. In very young dogs, I simply insert one or two sutures of the wire through the skin, muscles, fascia, and peritoneum, twisting it several times for retention. In ear trims, stainless steel wire is quite effective, as it acts as a stay or brace using the buttonhole type of suture.

Patients remaining in the hospital following spaying operations are bandaged with a layer or two of gauze and then taped over the back. Infrequently, an owner wishes to take a patient home the same day, or perhaps the day after, the operation; in these cases, jacket the patient in muslin for safety.

Following an operation, the patient is placed in a warm room and covered to prevent chilling. Where shock is a factor, it is well to administer dextrose in normal saline or Ringer's solution. Should hemorrhage

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occur, I administer, intravenously, some of the hemostatic agents such as thromboplastin, hemostatic solution (Jen-Sal), and oxalic acid solution. Even rabies vaccine may be of some use in an emergency. If recovery from the anesthetic is retarded, metrazol, amfetasul, or benzedrine sulfate is indicated, especially if nembutal or similar anesthetic agents have been used. A heat pad, in such cases, is of considerable value and will save patients that would otherwise die.

Tonsillectomy.—Tonsillectomy for relief of conditions due to focal infection located within the tonsils is frequently indicated. I know of no operation following which one receives more favorable comment than tonsillectomy. Certain lameness, torticollis, neuritis, rheumatism, and arthritis frequently stem from infections within the tonsils. Patients having repeated attacks of acute tonsillitis are greatly benefited by tonsillectomy. Canine patients with a history of chronic emesis are often benefited by surgical removal of the tonsils.

Blood Transfusion.—While the injection of citrated blood from the donor to the recipient is the proper procedure, not infrequently, time is a factor. A simple, rapid, and rather effective method of blood transfusion is to withdraw the blood from the heart or jugular vein of the donor and without the addition of an anticoagulant, inject it immediately into the peritoneal cavity of the recipient. It is usual to administer about 4 cc. per pound of body weight of the patient.

Otitis Externa. — Inflammation of the external auditory canal is a common occurrence in both canine and feline subjects. Mites, foreign objects such as barley, rye, wild oat, or tickle grass awns, lodged in the channel and, at times, simple retention of the ear secretions, more especially noted in long eared dogs, will produce an inflammation of the lining membrane of the auditory canal.

In treating ear conditions, a good otoscope is almost a necessity. The ordinary otoscope for human use, unless equipped with special cannulas of sufficient length and various sizes as to caliber, is unsuitable for this type of work. The instrument should have a movable lens to make good observation possible.

In parasitic otitis, I prefer to cleanse the canal with a cotton applicator saturated with canex. Following cleansing, instill a few drops of canex and massage the ear. This treatment should be repeated several times at five-day intervals.

In otitis due to foreign objects, it is well to administer a general anesthetic and then remove the object with suitable forceps, working through the cannula of the otoscope. Following removal of the object, instill a mild antiseptic such as 5 per cent sulfathiazole eye ointment or some other suitable agent.

For the usual run of canker cases, ether or other irritating drugs as cleansing agents are seldom used. I believe that overtreatment and constant cleansing may be more harmful than no treatment.

Glycerin containing 1 per cent phenol serves quite well as a mild cleansing agent. This same mixture may be instilled in small quantity as a healing agent. Iodoform in light mineral oil or some of the sulfa drugs in suitable menstruums often prove beneficial. When more drastic treatment is indicated, such as taping the ears over the head to allow good ventilation of the ear canal, I use applications of drying agents, such as white lotion, tannic acid solution, or a calamine preparation. In chronic cases of long standing, the "V" operation, allowing proper drainage, will correct many stubborn cases and allow the patient to rest in comfort.

Should a patient develop hematoma as a result of injury, such as violent scratching of the ear, an operation is in order. Using a curved scissors, clip out an oval piece of skin and tissue on the average 1.25 in. by 0.5 in.; after removing all serum and other accumulation, swab the cavity with tincture of iodine. Apply a wide piece of tape on the upper surface of the ear and another on the lower third of the inner surface; dress the opening, pad, and then tape the ear over the head. Redress and retape as required, depending on amount of drainage, size of cavity, and the damage done. It is understood that the ear should be shaved on both surfaces, a skin antiseptic applied, and instruments properly sterilized. If proper attention is given to dressing and holding the ear in place, it will usually heal in a normal manner; if neglected, a crippled ear is to be expected.

Corneal Ulcer.—This unpleasant condition may stem from a number of causes, such as corneal injury from scratches,

blows, enlarged Harder's glands, infection as a sequel to distemper, avitaminosis, or improper home medication of a simple case of conjunctivitis.

Cauterization of the ulcer may be indicated, using trichloro-acetic acid, and protecting the surrounding tissues with a bland anesthetic ointment. In the majority of cases, drastic treatment is not indicated; in fact, overtreatment often obstructs rather than promotes healing.

It is preferable to cleanse the eye with warm, normal saline solution, after which a few drops of a mild, astringent collyrium containing zinc and hydrastis are instilled three or four times daily. In addition to such treatment, use an anesthetic sulfathiazole eye ointment several times daily; and sometimes the same drug is used *per os* at the rate of 1 gr. per pound of weight per day, divided into three or four doses. If the dog paws or rubs his eyes, a St. Elizabeth's collar is placed about his neck and fastened to his collar or harness. It is surprising how much an inflamed eye will improve if given complete rest from rubbing for twenty-four to forty-eight hours. Keeping the patient in subdued light will hasten recovery.

It is well to desensitize the eye, using pontocaine (0.5%) or butyn instilled into the eye, making a thorough examination for foreign objects whenever severe conjunctivitis is present. Frequently, awns and barbed seeds are found lodged beneath the nictitating membrane; removal, plus mild applications to the eye, will speedily correct an unpleasant condition.

Professional Advice.—When a client requests information relative to prognosis of a disease for which his animal is receiving treatment, or perhaps following a surgical operation, he deserves an honest opinion. A reasonable, conservative estimate of what the client may expect is usually appreciated.

When asked for an opinion as to the advisability of anti-rabies or anti-canine distemper vaccination, it is our duty to suggest such vaccination, providing the subject is in proper condition for it. However, I feel we should call "a spade a spade" and not promise or guarantee absolute immunity, as is frequently done.

High pressure salesmanship is unnecessary. The client should be advised that no vaccine produced to date will afford 100 per cent immunity in either man or animals. Certain biological products for the prevention of canine distemper and rabies do afford protection, in the majority of cases, if used properly. However, it is well to mention that all dogs are not made immune following vaccination, and that immunity may at times be overcome because of certain factors which lower the resistance of the animal body to disease.

Biological agents for disease prevention, as produced by ethical laboratories, are the best obtainable at the present moment. Until more effective products are perfected, may we properly apply those we now have, and advise their use accordingly.

When a circuit-riding client relates that his dog has received treatment for a condition, either real or imaginary, by other veterinarians, and volunteers his opinion of their professional inability in no uncertain terms, it is well not to allow undue inflation of the ego. In all probability, our names, too, will soon grace the roster of the unworthy. Fido and his master must seek the services of a new doctor.

Regardless of why a new client may come to us for service, or how derogatory his opinion may be of another veterinarian, may we be ethical and defensive in behalf of our colleague. Remember that we, too, make mistakes and are unable to satisfy all clients, and in the not too distant future, this situation may be reversed. The layman or client will have greater respect for us personally, as well as for the profession as a whole, if we refuse to aid and abet adverse propaganda dispensed against members of the profession.

Fees.—In closing, perhaps it would be well to mention fees. Not infrequently, a veterinarian in general practice feels that the dog and cat have no material value and, hence, he should charge little, if anything, for his services when rendered in their behalf. A charge of $2.00 for a spaying operation and perhaps 50 cents or a dollar for examination and treatment, including drugs dispensed, is not uncommon. This is not as it should be. The same veterinarian may make a charge of $5.00 to $10.00 for treating a horse or cow, and not consume as much time or energy as when treating a small animal. The old adage that "a laborer is worthy of his hire" should apply to any phase of the practice of veterinary medicine and surgery. While it is reasonable to expect the general practitioner who treats but a limited number of small ani-

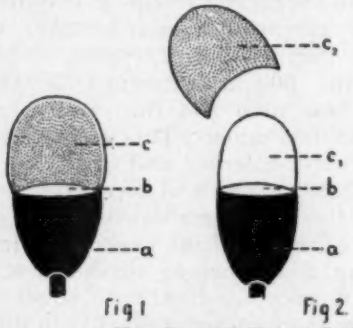
mal patients to charge a smaller fee than his city colleague conducting an exclusive pet hospital or clinic, his charges should at least be in keeping with the service rendered.

We cannot expect pet owners to value our services unless we supply a competent service and charge a reasonable fee in keeping with the time and effort expended. This, of course, holds true regardless of the type of animals we may be called upon to treat.

Should our lot in life find us located in a village treating an occasional pet in connection with large animal practice, or within a large city conducting an exclusive small animal clinic, let us conduct ourselves so as to command the respect of other professions, as well as of the livestock industry and pet-owning public in general.

The Galea Capitis in Sperm of Bulls

Ever since the *galea capitis* was first mentioned in 1865, it has been the subject of heated discussion regarding its significance, and some investigators have insisted that it does not even exist. The *galea capitis* is a very thin, isolated membrane, shaped like a bathing cap, which covers the *pars anterior* of the head of the sperm.



—*Skandinavisk Veterinärtidskrift*

Schematic drawings of the head of a normal bull spermium before and after detachment of the galea capitis. a) pars posterior; b) pars intermedia; c) pars anterior with the galea capitis in situ; c_1) the "bare" pars anterior after the detachment of the galea; c_2) galea capitis detached from the head.

By using a special India ink staining technique, Erik Blom has been able to demonstrate the presence of the *galea* in sperm from bulls and stallions. This is most readily done in those infrequent cases when there is a spontaneous detachment of the membrane, and this has been illustrated in photomicrographs of sperm from several bulls and from 1 stallion. The staining technique consists of placing one drop of undiluted semen on a microslide, adding 5 to 10 drops of India ink of the best homogeneous prewar quality, spreading the mixture so that the thickness of the layer varies from one end of the slide to the other, and drying the preparation in air. When examined, the sperm and other formed elements will appear as light bodies on a black or brownish background.

It is postulated that the spontaneous detachment occasionally observed presumably is caused by the fact that, during long abstinence from service, the sperm are packed closely into the *cauda epididymis* and many of them die and begin to disintegrate. Detachment of the *galea* may be one of the first regressive changes to be noticed, and the condition may be important if found in the sperm of a bull or a stallion that has served repeatedly, but unsuccessfully.—*Erik Blom: Spontaneous Detachment of the Galea Capitis in Spermia of Bull and Stallion. Skand. vet.-tidskr. 1945.*)

Asepsis in Veterinary Surgery

Asepsis in veterinary surgery is a figurative, not a literal, term for the reason that the air of the cleanest surgery, the hands of the most careful surgeon, and the skin of the best prepared site of invasion are *not* aseptic. The exposure of Petri dishes to the air of an operating room for ten minutes is more than likely to yield quite a few colonies, as was demonstrated by Guerin and others many years ago. The interior of a surgeon's glove removed and dipped into bouillon for a few minutes has given growths that caused abscesses in laboratory animals. Experiments by Merillat (E.) and Herzog, in 1908, at the Chicago Veterinary College, showed that the horse's skin could not be sterilized beyond the cuticle by any form of local antiseptic treatment. If there is any asepsis, in fact, around a veterinary surgical operation, indoors or outdoors, microbial life must have changed its habits. The so-called aseptic state is not absolute. Asepsis in animal surgery is the art of reducing the density of the microbial swarm and avoiding conditions favorable for its propagation. A few germs in a clot of blood the size of a pinhead, nesting in the recesses of a closed wound, can kick up more trouble than whole swarms on the surface.

CLINICAL DATA

Single Injection Specific Treatment for Foot Rot in Cattle

CHARLES R. FORMAN, D.V.M.
Fort Lauderdale, Florida

ONE INTRAVENOUS injection of 60 Gm. of sodium sulfapyridine dissolved in 500 cc. of distilled water is absolutely specific and absolutely nontoxic in the treatment of all types of foot rot in Jersey and Guernsey heifers and cows ranging in age from 18 months to 10 years, and varying in size from 500 to 1,000 lbs.

The writer is in the dairy business and has some 500 Jersey's and Guernsey's of all ages. The dairy has been in the same location thirty-five years and is plagued by a relatively high incidence of foot rot. Prior to Dr. James Farquharson's report on the successful treatment of calf diphtheria with sodium sulfapyridine[1], most of the local remedies (copper sulfate, creoline, formalin, phenol, iodine, lime, pine tar, etc.) for foot rot were tried with varied success. Regardless of the local treatment used, stubborn cases were encountered that ran a prolonged course, required repeated treatment and, due to lameness and toxicity, lost weight and markedly fell off in milk production. We frequently lost our temper and were occasionally kicked by an objecting patient. After reading Dr. Farquharson's report on calf diphtheria[1], sodium sulfapyridine was used on our foot rot cases.

To be certain the foot rot was caused by a sulfapyridine labile organism, 3 stubborn cases of long standing that had each received various treatments without success were treated with sulfapyridine orally. Each cow received 1/3 gr. of sulfapyridine per pound of animal weight every eight hours. Recovery was complete in all 3 cases, but it took a pound of sulfapyridine for each cow. To attest to the chronicity of these cases, 1 cow still has an external exostosis the size of a small tangerine on the lateral surface of her foot. Another cow had several fluctuating swellings on her leg, extending from the foot to well above the knee. The swellings disappeared simultaneously with the foot lesions. These 3 cows treated three years ago are still in our milking herd.

Certain that the foot rot in our herd was caused by an organism susceptible to sulfapyridine, a 5 per cent solution of sodium sulfapyridine was administered intravenously. The dose recommended by Dr. Farquharson for calf diphtheria[1], 3 Gm. per 100 lb. of body weight (24 Gm. for an 800-lb. Jersey) was first used. As this was ineffective, the dose was increased with each attempt until 40 Gm. were given. A 40-Gm. dose was effective, but frequently needed to be repeated. It was gradually increased to 60 Gm. To date, I have not had to repeat treatment when 60-Gm. injections were used. In the larger breeds, it may be necessary to increase the dose; however, each of 3 cows that weighed 1,000 lbs. were cured with one 60-Gm. injection. A 16-gauge needle was used and the solution was allowed to flow rapidly. This dose was given to 15, 2-year-old Jersey and Guernsey heifers with foot rot, without any toxic reaction. I have treated all gradations of the disease, ranging from initial cases showing only swelling and lameness to the most severe cases of long standing, with equal success. Swelling and lameness started to disappear within a day, thus enabling the cow immediately to resume normal grazing and milk flow. There was no local treatment given and no hospitalization. The cows were treated and put back in the milk herd at once. It may take from a few days to two weeks for the lesions to disappear completely, depending upon their severity—but they will disappear without local treatment. Since using sodium sulfapyridine for foot rot, I have successfully treated 80 cases without using bandage, surgery, or local medication of any kind.

At my suggestion, Drs. Larry Kelley and

J. E. Burch, of Fort Lauderdale, J. H. Yarborough, M. B. Teigland, and J. E. B. Mouw, of Miami, and Clarence Dee, of Miami Shores, have been using sodium sulfapyridine in cases of foot rot encountered in their practices. They report that the dairymen are enthusiastic about this treatment for foot rot.

To save time, Dr. J. E. Burch started using a 12 per cent solution (60 Gm. in 500 cc. water). This proved to be safe and effective. All of his cases and most of those reported by the other practitioners were treated with a 12 per cent solution. Instead of weighing the drug each time, he measured the sodium sulfapyridine with a cup calibrated to hold 60 Gm. He used a 14-gauge needle. Fifty-nine of 63 cases treated recovered following one intravenous injection of 60 Gm. of sodium sulfapyridine. The remaining 4 were cured by a second injection of 60 Gm. given four or five days after the first.

Prior to treating 8 cows at one dairy, Dr. Burch prepared the solution and stored it in the refrigerator. The solution was still cold (estimated 50 F.) upon reaching the farm. Marked shock occurred in the first 3 cows injected. These responded promptly to 1 cc. of adrenalin. The 5 remaining bottles were warmed before being used and no difficulty was encountered following their injection. This may be of interest to practitioners in the northern sections of our country.

Drs. J. H. Yarborough, M. B. Teigland, and J. E. B. Mouw, working together, cured 38 of 41 cows treated for foot rot with 60 Gm. of sodium sulfapyridine. Three cows failed to respond to two 60-Gm. injections each. Dr. Clarence Dee has successfully treated 11 cases.

I recently gave each of 9 milking cows intravenous injections of 90 Gm. of sodium sulfapyridine dissolved in 900 cc. of distilled water (10% solution). This dose (90 Gm.) was repeated in 1 cow the next day and, except for a slight nervous reaction in some immediately following the administration, 8 of the cows (including the 1 that received two successive doses of 90 Gm.) exhibited no apparent ill effects. I regret that I did not have time to make blood and urine determinations. The ninth case will be described later. Four of these 8 were acute mastitis cases and were simultaneously receiving daily injections in one quarter each of 3 oz. of a mineral oil suspension of sulfathiazole (approximately 1 oz. of sulfathiazole). Incidentally, I have had good results treating clinical mastitis with homogenized sulfathiazole in mineral oil. Apparently one intravenous injection of 90 Gm. of sodium sulfapyridine produced no effect upon the course of any of 4 cases of acute mastitis (presumed to be staphylococcic infections due to previous herd history). In view of these results, except in badly dehydrated and emaciated animals, I believe it would be advisable to increase the second dose when retreatment is necessary. However, I believe 90 Gm. is close to a toxic dose. It is preferable to wait until the fifth day before repeating treatment.

It is my understanding that in necrobacillary infections, whether primary or secondary, the characteristic localization of *Actinomyces necrophorus* is at the boundary between the necrotic and living tissue.[2, 3, 4, 5, 6, 7] I assume that these *A. necrophorus* organisms have to be located either at the border or within the living tissue to be destroyed by intravenous medication. Many necrobacillary lesions are continuously subjected to contamination by a variety of pathogenic bacteria. Certainly most, and probably all, of these would-be invaders could not be killed by one large intravenous injection of sodium sulfapyridine. Therefore, the author hypothesizes that when *A. necrophorus* invades animal tissue, it produces some kind of barrier that prevents the growth of other bacteria in the affected tissue. This may be accomplished by using up, or altering, some prerequisite growth factor. It may be the action of the toxins produced by this organism. Or, *A. necrophorus* may produce an antibiotic agent. Regardless of how it accomplishes this feat, I am satisfied that *A. necrophorus* protects invaded tissues against other infection. Therefore, it is a mistake to attempt to remove the necrotic material from these lesions or to use other surgical intervention. The operator can do no good but may do a great deal of harm by pushing other infective agents past the barrier created by *A. necrophorus*. When the necrophorus infection is overcome, the necrotic material drops away and the lesions heal spontaneously.

In the case of nail punctures, or other penetrating foreign body wounds, bacteria other than *A. necrophorus* will probably be involved. While these cases may simulate true foot rot, they cannot be expected to

respond to one intravenous injection of sodium sulfapyridine. We have seen cases of external exostosis caused by foot rot. This condition must occasionally occur within the joint. If the articular surfaces have received permanent, mechanical damage by exostosis or erosion, lameness will probably persist after the infection is destroyed. So far, the author has not had the misfortune to find this condition.

This treatment is clean, easy, highly specific, and professional. It saves time and temper. It puts the cow "back on her feet" and, therefore, back on full milk flow almost immediately.

A. necrophorus, acting both as a primary and secondary invader, with and without metastasis, produces lesions in most organs in cattle, *i.e.*, necrotic rhinitis, stomatitis, pharyngitis, laryngitis, foot rot, hepatic necrobacillosis, pneumonia, abomasal ulcers, osteitis and osteomyelitis without external lesions, encephalitis and meningoencephalitis, metritis, vaginitis, vulvitis, penitis, cutaneous necrosis of the udder and teats, etc.[2, 3, 4, 5, 6, 7] When treating obscure ailments on a farm where necrophorus infection has occurred before, the author believes internal necrobaccillosis should be considered. The following two cases are cited to support this view. (The inadequacy of the number of cases is fully realized.)

Case 1—Drs. J. H. Yarborough and M. B. Teigland had a 1,100-lb. bull with these symptoms: complete anorexia for three days, icterus, temperature 103 F., ruminal motility fair. Tentative diagnosis: anaplasmosis. Four hundred and fifty gr. of sodium cacodylate were administered intravenously and a blood sample taken. The blood picture was: negative for anaplasma, hemoglobin 55, erythrocytes 5,800,000, and leucocytes 19,500. As the bull made no improvement, three days later 1,100 gr. of sodium sulfapyridine were injected intravenously. The bull's appetite was good the next day and he made a rapid recovery.

Case 2—A small Jersey cow owned by the writer was successfully treated for diarrhea, but developed a poor appetite, with loss of weight and diminished milk production. She remained negative for acetonemia. She was given 450 gr. of sodium cacodylate dissolved in a liter of 10 per cent dextrose in Ringer's solution; her condition remained unchanged. Following severe rains, she developed pneumonia, but the lungs cleared after three days' oral administration of sulfathiazole. For the next two weeks, she ate no grain, continued to lose weight, and practically dried up, giving only scant, watery secretion. She was weak and emaciated. Ninety grams of sodium sulfapyridine dissolved in 900 cc. of distilled water were injected intravenously. As the injection was completed, the cow collapsed. Amphetamine sulfate and caffeine and sodium benzoate were both administered. In a few minutes, she regained her feet, but was weak and exhibited marked nervous disturbances the remainder of the afternoon. She flinched and jerked her head as though someone were striking at her eye. The next day she was about as before. The following day, her appetite returned and, in a few days, her milk became normal.

The writer believes that correspondingly satisfactory doses of sodium sulfapyridine could be worked out for treating *A. necrophorus* infection in other animals.

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The Last Resort

Daugherty, Illinois practitioner (*North Am. Vet.*, July, 1946), writing on acute bovine mastitis observes:

> Most of the time, the dairyman calls us only when the milk refuses to go through the strainer or when the cow is showing systemic symptoms. Much of the time he waits a few days to see how she'll come out. . . The owners want something done—and done now—and we have a difficult job on our hands.

An old habit out of the dim past lives on, for in all times within the recollection of the oldest unto this day, *iste homo*, the doctor of livestock was besought as a last resort and had a "difficult job on his hands."

The key to practical control of coccidiosis [avian] is obviously the establishment of immunity in young chicks.—*Swales.*

Sodium Iodide Therapy in Infectious Equine Encephalomyelitis

R. D. RADELEFF, D.V.M.
Kerrville, Texas

THE LAST FEW YEARS has been a period of vast improvement in the therapy of many infectious diseases. The advent of new chemotherapy represented the first of the strides forward and antibiotic therapy followed closely. We have seen many diseases yield to these agents, but as yet we have no effective therapeutic agent for infectious equine encephalomyelitis.

In our rush to sulfonamides, penicillin, and other similar agents, we have overlooked a valuable chemotherapeutic agent. It should be remembered that the sulfonamides came at almost the same time as the etiology and immunology of equine encephalomyelitis. Most of us were prone to believe that if these new agents didn't cure there was just no hope.

Udall[1] states that there is no specific therapeutic agent for the disease. He discounts the claims made for the effectiveness of antiserums. His recommendations are for purely symptomatic treatment: good food, plenty of water, saline and dextrose intravenously, and the best of nursing.

Feeling somewhat useless and helpless using these measures, I have observed, with the owners' permission, the effects of various drugs on the course of the disease. As a result of these observations, I wish to present sodium iodide for further use and study.

R. L. High[2], quoting Sajus, states that iodine has a specific physiologic function as a factor in systemic defense against infection by sensitizing bacteria to phagocytosis. High further attributes the following actions to iodine: It raises the germicidal power of the phagocytes, hastens the elimination of the products of cellular catabolism, and displays selectivity for specifically inflamed or infected tissues. It stimulates the glands of internal secretion, prevents the formation of necrotic tissue, and favors the absorption of inflammatory exudates. In addition, it dilates the peripheral vessels and those nourishing the heart.

Fig. 1—A case of equine encephalomyelitis (case 5 on table 1) before treatment.

It was these pharmacologic activities of iodine which first persuaded me to use it in practice for treatment of encephalomyelitis. Aside from whatever specificity the drug might have against the virus of encephalomyelitis, it certainly merits use as a supportive agent.

In addition, it is interesting to observe that Ernest Gray used potassium iodide successfully in the treatment of leucosis[3]. Victor Lewitus[4], without citing specific examples, states that iodides, used in cases of inflammation or effusion involving the brain and spinal cord, give surprisingly gratifying results.

In my own work, sodium iodide has given more than satisfactory results, both from my client's standpoint and my own. Whether these results are to be attributed solely to the supportive effect of the drug or to specificity for the virus, I cannot accurately state.

TABLE I

Case No.	Improvement in hours			Recovery	Death	Number treatments	
	48	72	168				
1		X		X		1	
2		X		X		1	
3	X			X		1	
4			X	X		2	
5		X		X		1	
6		X		X		1	
7			X	X		2	
8					X	2	
9		X		X		1	
10	X			X		1	
11		X		X		1	
12		X		X		1	
13		X		X		1	
14			X	X		2	
15		X		X		1	
16			X		X	2	
17		X		X		1	
18		X		X		1	
19	X			X		1	
20		X		X		1	
21		X		X		1	
22		X		X		1	
23		X		X		1	
24		X	X	X		2	
25		X		X		1	
26	X			X		1	
27	X			X		1	
28		X		X		1	
29		X		X		1	
30		X		X		1	
31					X	1	
32	X			X		1	
33		X		X		1	
34		X		X		1	
35			X	X		2	
36		X		X		1	
37		X		X		1	
38		X		X		1	
39	X			X		1	
40		X		X		1	
41			X	X		2	
42		X		X		1	
43		X		X		1	
43	7	29	7	40	3	8 35	twice once

Recoveries: 93.1%. Deaths: 6.9%. Dummies: 0.0%.

MORTALITY LOWERED

Previous to the routine use of sodium iodide in these cases in my practice, the mortality in the area varied from 40 to 50 per cent. During the time of the trials of sodium iodide, the area mortality was about 40 per cent, while in the cases treated with iodide, the mortality was less than 10 per cent. Since there is no evidence to the contrary and the mortality among animals treated by conventional methods was much higher, it is reasonable to assume that this reduction in mortality is attributable to the use of sodium iodide.

Significant, aside from the reduced mortality, is the fact that those animals treated with sodium iodide recovered more rapidly and the period of convalescence was much shorter than with the other methods. The cases treated by this method are tabulated for convenience (table 1).

The dosage of sodium iodide can be varied over a fairly wide range with safety. The optimal dose in my work was 5.0 Gm. (75 gr.) per 100 lb. of weight. This amount may be repeated on the third day without ill effect. While no abortions have occurred from the use of sodium iodide, it is well to keep that possibility in mind. The dose should be well diluted with sterile distilled water and given intravenously. On occasion, the dose has been diluted with sterile 50 per cent dextrose solution without apparent side effects of any kind.

The customary treatments indicated should be used. The animal should be made as comfortable as possible and provided with nourishing and easily digested food. Physiologic saline solution given intravenously greatly aids in combating dehydration in those cases refusing to drink sufficient quantities of water. Dextrose solutions are particularly valuable in cases refusing to eat.

While it was essential in conserving life in some cases, the promiscuous use of the stomach tube was avoided. Repeated passages may set up secondary conditions and the excitement caused by restraining the patient and passing the tube is not conducive to best clinical results.

It was my experience that the fewer highly active drugs administered in the course of the disease, the more satisfactory and rapid the recovery became. Constipation was avoided by feeding mildly laxative food, such as wheat bran. When constipation was already established, enemas were preferred to the laxative or purgative drugs and were usually quite as effective.

Every effort was made to convince the owner that rest and quiet were essential. The practice of making the patient walk or trot to demonstrate just how sick he was proved foolish and detrimental.

The average case responded visibly to treatment in forty-eight hours or less. The recovery was more marked for the next seventy-two hours, then leveled off to a slower rate of gain. A few residual symptoms of cerebral and cerebellar irritation remained for as long as a week thereafter, but improvement in physical condition continued steadily. Thus far, no dummies have been observed in treated cases.

Less than 20 per cent of the cases showed no visible improvement the first forty-eight hours. In these cases, a second dose of sodium iodide of the same size was given. Between 50 and 75 per cent of those receiving the second dose recovered. Twenty-five to 50 per cent failed to respond and accounted for most of the fatalities.

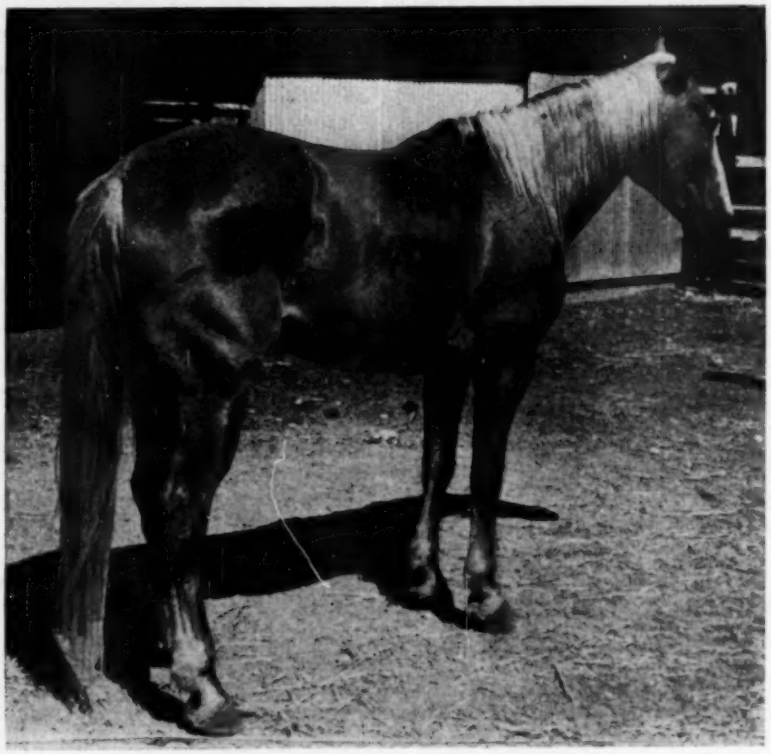

Fig. 2—Horse shown in figure 1 seven days after treatment.

SUMMARY

Of 43 cases treated with sodium iodide at the rate of 5 Gm. per 100 lb. of live weight, there were only 3 fatalities (7%). No dummies resulted. This was in contrast to an average area mortality of 40 per cent for the same period.

Recovery was more rapid than in cases treated in the routine manner. Repetition of the dose was necessary in less than 20 per cent of the cases.

Sodium iodide, on the basis of results obtained in the 43 cases, proved to be a valuable agent in the therapy of infectious equine encephalomyelitis.

The effect of the drug on the virus

should be studied in incubating eggs to determine whether it is viricidal.

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Yellow Fever and Rabies

On Aug. 2, 1878, the *Chicago Times* printed: "There is not a hundredth part of the danger from yellow fever in Chicago or any other part of Illinois that there is from mad-dog which is more terrible in every way than any visitation of "Yellow Jack." There was a yellow fever scare in the South. Commenting on this newspaper item, *Illinois Health Messenger* remarks that, whereas there is no danger in Illinois from yellow fever, it is not so with rabies for, in 1944, there were 363 cases of the latter: 314 in dogs, 6 in cattle, 3 in horses, 32 in cats, 1 each in skunks and foxes, 2 in men. During January, 1946, there were reported 524 bites requiring the health department's attention.

From the *Dog World* we quote:

Prof. Leonard W. Goss, [who breeds] Goswyre Irter K's, 5441 Hard Road, Columbus, O., feels that the bill still before the House of Representatives at Washington and known as HR 1986 should be passed into law.

This bill seeks to place dogs in the same classification as livestock and give the federal government practically complete control over the movement of dogs.

Control of livestock has eliminated many diseases, says Prof. Goss, who believes that the present bill sponsored by the Department of Agriculture should be passed "to make it more possible to eradicate diseases and keep them under control."

We personally are opposed to this bill, for we cannot consider dogs as meat to eat, as livestock, nor can we enthuse over placing the dog industry, the dog sport, and other dog activities under the supervision of Washingtonian payrollers.

However, Prof. Goss, who has bred Irters for many years, concludes: "I can see nothing but misjudgment on the part of the people who are opposing this bill."

Comparing the meat sandwich in dad's lunch bucket and the milk in baby's bottle with Fido's rompings seems to be blocking the control of rabies, but even that will have to be handled.

Avirulent Swine Erysipelas Vaccine

A vaccine attenuated on trypaflavine-agar is described by Sandstet and Lehnert (*Skand. Vet. Tidsk., 34*, 1944: 129). The vaccine was tried on 15,000 hogs, on 8,000 of which the results were studied. Circulatory troubles were observed in 12 cases, 21 sickened, and 2 died in two to fifteen days following vaccination. Some of these had contracted the disease before being vaccinated. Following fifteen days after vaccination to three months, none of the treated animals were stricken, notwithstanding that numerous cases were seen in untreated animals.

The authors recommend that the avirulent vaccine be given in the spring or early summer before the disease breaks out. After that period, sero-vaccination would be preferable and attention should be given to mineral and other deficiencies which, at least, are predisposing.

Community Warble Fly Control

By selecting a small area in New York and treating all cattle of the area for warble-fly infection, Matthysse of Cornell University (*J. Econ. Entomol.* abstr. *Exper. Sta. Rec., 95*, Feb. 1946: 243) reported an appreciable decrease in warble-fly attacks in the area, and counts made the following season showed a decrease in the grub population.

Rotenone, 1 : 3, was found to be the only effective insecticide. Dustings were made one month before the cattle were to be turned to pasture and a second treatment at the time of turning out. Treatments were given in April and in May. Pyrophyllite proved to be a better diluent than wettable sulfur. Spraying the belly and legs with DDT mixtures before turning the cattle out in the spring had no preventive value. This appears to be the first example of community grub control in this country.

The importance of liver lesions in human brucellosis is occupying considerable attention in medical literature.

Sensitivity of Erysipelothrix

Although *Erysipelothrix rhusiopathiae* is sensitive to the action of penicillin, Woodline (*Vet. J.*, April 1946) found little evidence of protection in mice infected with the organisms, even when large doses were used. He believes that the results on mice do not justify the conclusion that erysipelas in pigs will prove amenable to chemotherapy with penicillin.

Erythroleucosis Transmission

Blood changes could be observed in 8 of 15 chicks examined twenty-two days after intravenous injection of nasal washings of birds infected with erythroleucosis. A severe, anemic type of the disease occurred in 2 of the above 8 birds; but none of the birds subjected to direct and indirect contact trials showed evidence of disease. These results are reported by Dr. A. B. Wickware in *Canadian Journal of Comparative Medicine* (March, 1946).

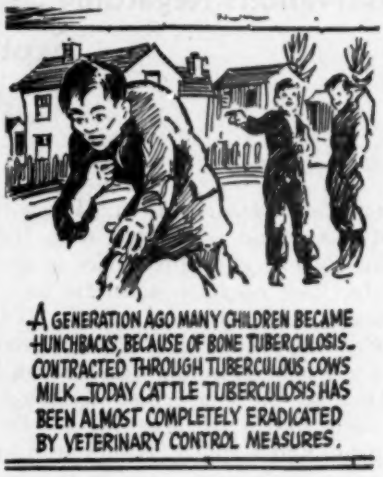
Progress in Rabies Control

Illustrating the harm that may come from failing to keep up to date, Dr. Cecil L. Gates, of Belleville, N. J., points out in article in the *Newark Evening News* of June 7, 1946. Health Officer Craster is quoted as saying that because tests conducted "several years ago" by "Public Affairs Director Brady" were not effective, these findings put inoculation definitely out of the picture so far as Newark is concerned."

Agreeing with Dr. Gates "that this statement is wrong and something should be done about it," copies of the report of the Committee on Rabies *(see* May JOURNAL, p. 293) have been sent to the *Newark Evening News* and to Health Officer Craster, calling their attention to the bibliography which lists results of recent work with the newer rabies vaccines, developed and tested on the basis of the Habel mouse test.

It is recommended that veterinarians take steps to correct errors of this kind and to bring such antiquated information up to date. The central office of the AVMA will send information, if clippings or correct names and addresses are furnished.

Eventful Moments


A GENERATION AGO MANY CHILDREN BECAME HUNCHBACKS, BECAUSE OF BONE TUBERCULOSIS. CONTRACTED THROUGH TUBERCULOUS COWS MILK...TODAY CATTLE TUBERCULOSIS HAS BEEN ALMOST COMPLETELY ERADICATED BY VETERINARY CONTROL MEASURES.

—Associated Serum Producers.

Fig. 1—When children crippled by tuberculous infection began to vanish from the scenes of every day life on account of the campaign waged against bovine tuberculosis, veterinary medicine was able to celebrate the birth of an eventful task.

Rabies losses in 1944.

—Associated Serum Producers.

Fig. 2—Another eventful moment ought to arrive when the high incidence of rabies in domestic dogs is put among the agenda of livestock sanitary science and police as a human obligation to children and their pets.

Observations Regarding Salmonella Choleraesuis (var. kunzendorf) Septicemia in Swine

LEE SEGHETTI, D.V.M.
Bozeman, Montana

Salmonella choleraesuis, var. *kunzendorf* is sometimes found associated with the virus of hog cholera and apparently is the cause of infectious necrotic enteritis as well as an acute septicemia in swine. The fact that *S. choleraesuis*, by itself, can produce an acute septicemia in pigs and cause lesions identical to those ascribed to hog cholera has been shown by Manninger[1], De Kock, Robinson, and Keppel[2], Hindmarsh and Edgar[3], and Pinkerton[4]. As to the incidence of its occurrence, we are unable to say, but are of the opinion from observations that this disease is more prevalent in swine than is generally recognized and recorded in the literature in this country.

During the past year, several sporadic outbreaks have occurred in feeder pigs in the Gallatin Valley. A concurrent outbreak in the swine raised at Montana State College afforded an opportunity to study the disease quite comprehensively. Since the establishment of this herd, no losses have occurred from a contagious disease. No additions have been made to the herd in recent years, nor has this herd ever been vaccinated with serum-virus. The first losses occurred suddenly, and 3 died in a lot of 20 fat hogs during the latter part of December, 1943. The following day, a shoat in another lot was found dead of apparently the same condition. Two months later, 2 pigs died of this disease. These losses were not restricted to one pen or class of pigs, but occurred in different lots among the younger animals. Other swine in the affected lots did not show any clinical evidence or abnormal temperatures. The diseased pigs were either found dead or in the acute stages of the malady without having shown any previous signs of illness. These animals showed temperatures of 107 to 109 F., weakness of the hind quarters, and a weaving gait. The eyes showed no abnormality. Although reluctant to move, t pigs did not show a deep state of depr sion or indifference.

A number of observations were made the blood picture in field cases and, lat in experimentally infected pigs. No si nificant changes were observed except moderate leucocytosis, with an increase polymorphonuclears and a decrease in ly phocytes. This is in contrast to the le copenia observed in hog cholera.

Necropsies of these animals showed sions that are commonly ascribed to h cholera. In view of the history, manag ment, mortality, and morbidity, witho any of the other animals showing sympto or elevations in temperatures, a defini diagnosis of hog cholera was not justifiab No treatment or prophylaxis was institut but pigs from the affected lots were o served and daily temperatures were tak over a period of two weeks.

Pathology

Six pigs were available for autopsy fr the college herd, and 9 pigs were brou to the laboratory from four outbrea which occurred concurrently in the s rounding area. The skin of the abdom and inner aspects of the thighs and axil often showed a diffuse reddish purple d coloration. In some cases, the snout w discolored and the ears showed discolorati and necrosis.

The pleura was normal when the dise was not complicated by secondary pn monia. The pericardial sac often contain an excess of serous fluid with or witho fibrinous clots. Epicardial, myocardial, a endocardial hemorrhages were not unco mon and sometimes extensive.

Frequently, the lungs showed lobar pn monia and pleuritis. When the lungs w not pneumonic, they were cyanotic a edematous, and focal hemorrhages w noted throughout.

The liver was usually enlarged and p sively congested or had a nutmeg appe

From the Montana Veterinary Research Laboratory (Montana Experiment Station and Livestock Sanitary Board, coöperating).
Paper No. 66, Journal Series, Agricultural Experiment Station, Montana State College.

e. Areas of focal necrosis beneath the sule were often observed.

The spleen showed some enlargement oughout and was of firm consistency. some cases observed, the spleen showed cumscribed hematoma-like swellings or s enlarged eight to ten times the normal e.

Usually, the kidneys showed varying mbers of petechial or ecchymotic hem- hages beneath the capsule. It was not ommon to find the kidneys congested, ollen, and the cortex containing many al hemorrhages, giving them the so- led turkey-egg appearance. In some in- nces, the hemorrhages were not confined ely to the cortex, but were disseminated oughout the kidney.

The lymph nodes were usually greatly arged, edematous, and either very red bluish black, or had a marbled appear- ce. As a rule, the internal lymph nodes owed more pronounced changes than the dy lymph nodes except probably the ndibular ones. The lymph nodes most mmonly affected were the hepatic, gastric, senteric, mandibular, parotid, medias- al, internal iliac, and superficial inguinal. cut surface, they were moist and vary- degrees of hyperemia or hemorrhage re observed, depending on the severity.

The lesions of the intestinal tract were her uniform. Hemorrhages and hyper- ia of the mucosa were observed in the ndus of the stomach, and ulceration was ident in some cases. The mucosa of the all intestine showed thickening and, fre- ently, many petechial hemorrhages. ten, this condition progressively in- ased in severity towards the ileocecal lve and terminated in a hemorrhagic itis. Subserosal hemorrhages were not nstant. The cecum and colon showed hy- remia and hemorrhage, and diphtheritic flammation and ulceration. Ulcerations the ileocecal valve were noted, but be- use of their rather common occurrence other conditions, we believe that they ve no pathognomonic significance.

Hyperemia and focal hemorrhages were served quite frequently in the mucosa the epiglottis and bladder. Focal necro- of the pancreas was seen in several ses. In general, it was impossible to ferentiate the macroscopic lesions from ose ascribed to hog cholera.

Microscopically, degenerative changes re evident in the heart muscle. The fibers were swollen, unevenly stained, and fragmented, with loss of striations. Interstitial focal hemorrhages were present with no apparent damage to the blood vessels. The alveolar walls of the lungs were swollen and engorged with red blood cells and monocytic cells. This process may have advanced to the extent that there was a consolidation of the alveoli. In the liver, the sinusoids contained red blood cells and may have been engorged to the point where the liver cell cords were reduced in size. The liver cells showed degenerative changes and, in some cases, focal coagulative necrosis of the liver was observed. The sinuses of the spleen were dilated with blood cells, and often there was an obliteration of the splenic structure resulting from profuse hemorrhage. Degenerative changes or hyalinization of the blood vessel walls, as described for hog cholera, were not evidenced to any great extent.

The glomeruli of the kidneys were greatly enlarged, more cellular than normal, and engorged with blood cells distending the capsule. The epithelium of the tubules showed degenerative changes with diffuse hemorrhage in the interstitial tissue. Varying amounts of exudate were present in the tubules.

The blood vessels of the lymph nodes were engorged with blood cells and, depending on the severity, hemorrhage was observed in the subcapsular and medullary sinuses. Areas of focal necrosis were observed in the medullary substance. In the lymph nodes having a bluish black appearance macroscopically, the structure of the entire node was obliterated by extravasated blood.

Hyperemia, hemorrhage, and desquamation of the surface epithelium of the mucosa were the most constant changes involving the intestinal tract. When ulceration or diphtheritic inflammation was evident, the principal microscopic lesion was caseation necrosis.

The microscopic picture seen in this form of the disease was principally that of hemorrhage with slight or no change in the vascular system, whereas, in hog cholera, marked degenerative or proliferative changes of the blood vessels accompanied by thrombosis are described.

EXPERIMENTAL

Pure cultures of *S. choleraesuis* var. *kunzendorf** were obtained from 14 out of

15 spleens cultured. Blood and spleen tissue were obtained from several hogs dying of this disease, from which bacteria-free filtrates were prepared and pooled. Two cholera susceptible pigs were inoculated with the filtrate. One pig received 10 cc. intraperitoneally, and the other received 30 cc. subcutaneously. No subsequent reactions of temperature or blood changes occurred in the following twenty-one days, and the hog receiving 30 cc. of filtrate was found to be susceptible to hog cholera when inoculated with commercial virus. To observe the effect of Salmonella cultures, when given intravenously, a cholera immune pig was given 1.5 cc. of a saline suspension from a 24-hour agar slope. Within twenty-four hours, the temperature had reached 107.6 F. At this time, the pig showed inappetence, weakness of the hindquarters, and marked illness. It died thirty-six hours later of an acute septicemia. The postmortem lesions were the same as those observed in field cases. Pure cultures of Salmonella were recovered from the spleen. Another experiment was carried out at the same time in which a pig was given four washed-off agar slopes of the same culture *per os*. The symptoms were similiar to those developed in the pig receiving the intravenous inoculation, but were not as marked. The temperature curve was practically the same but the rise not as abrupt. On the fourth day, the temperature approached the normal range and the animal was destroyed. On postmortem examination, pathologic changes were observed in the intestinal tract and the mesenteric lymph nodes. The mucosa of the stomach and small intestine showed a moderate hyperemia. The cecum and small colon showed disseminated ulceration. The mesenteric lymph nodes were greatly enlarged, but not hyperemic. Pure cultures of Salmonella were recovered from the mesenteric nodes, but the spleen was negative. In further experiments, we failed to reproduce this acute septicemic condition by feeding large doses of several strains of *S. choleraesuis*.

DISCUSSION

An attempt has been made to describe the symptoms and the macroscopic and microscopic lesions of septicemic salmonellosis. As indicated by the foregoing results, it was impossible to make an outright diagnosis of hog cholera based on the macroscopic lesions, for the lesions found in septicemic salmonellosis are indistinguishable from those of cholera. One finds discoloration of the skin and enlargement and engorgement of the lymph nodes. Peripheral hyperemia or hemorrhages of the lymph nodes were present, and these changes sometimes extended toward the center giving the nodes a marbled appearance. The spleen showed some degree of swelling and sometimes contained hematoma-like areas. Frequently, petechial or ecchymotic hemorrhages occurred in the mucosa of the epiglottis, bladder, stomach and intestines.

The symptoms closely resembled those of hog cholera, but the course of this disease was not similar. In general, the herd picture differed from hog cholera in that the morbidity and mortality was lower. Dead pigs or those that were in the advanced stages of the disease usually were the only animals seen affected in an outbreak. The latter did not show the indifference and deep stupor of a pig affected with hog cholera. Abnormal temperatures were rare in animals not visibly sick. Frequently after three or four deaths, the losses stopped as suddenly as they began. No further losses were experienced except that occasionally, they recurred in three or four weeks and again disappeared. These observations are not consistent with those seen in hog cholera.

It was imperative to make an early diagnosis, since the pigs in this section are not routinely immunized against hog cholera because of the sporadic nature of the disease in Montana. It was very difficult to make a differential diagnosis based on observed symptoms or lesions. However, it has been our experience that pigs dead from acute hog cholera, unless they have been affected for several days, seldom show definite lesions, while pigs affected with septicemic salmonellosis show the so-called typical lesions of cholera in much shorter time. It would appear that to find pronounced, so-called hog-cholera lesions in a pig dead in twenty-four to forty-eight hours after being found ill may justify a tentative diagnosis of salmonellosis.

*The specific identification was made through the courtesy of Dr. P. R. Edwards, of the Kentucky Agricultural Experiment Station.

Septicemic salmonellosis was diagnosed in cholera immune pigs, and also following serum-virus immunization in what was thought to be a vaccination break. These observations have been substantiated by experiments carried out by Van Es and Olney[5], in which they showed that some of the so-called vaccination breaks are not due to the cancellation of immunity to hog cholera, but the ability of *S. choleraesuis* to produce disease with or without the help of the hog-cholera virus.

In one outbreak, with a fairly high mortality and showing the necropsy lesions of hog cholera, the herd was vaccinated with serum and virus. Irregular incessant losses continued, and finally the herd was sold for slaughter. *S. choleraesuis* infection was suspected, as evidenced by repeatedly obtaining pure cultures of Salmonella from the heart blood, spleen, and lungs of pigs recently dead or sacrificed.

SUMMARY

Observations of septicemic salmonellosis involving some 400 pigs on six premises are reported.

The onset of the disease was acute, and the cardinal symptoms were a marked rise in temperature, posterior incoördination, and weakness.

Characteristically, the mortality was not great and ceased of its own accord after a small percentage of the pigs had died.

Macroscopically, the lesions of septicemic salmonellosis were indistinguishable from those ascribed to hog cholera.

Salmonella choleraesuis was repeatedly recovered from pigs dying of this disease, whereas, bacteria-free filtrates prepared from blood and other organs when injected into cholera susceptible pigs failed to produce a reaction.

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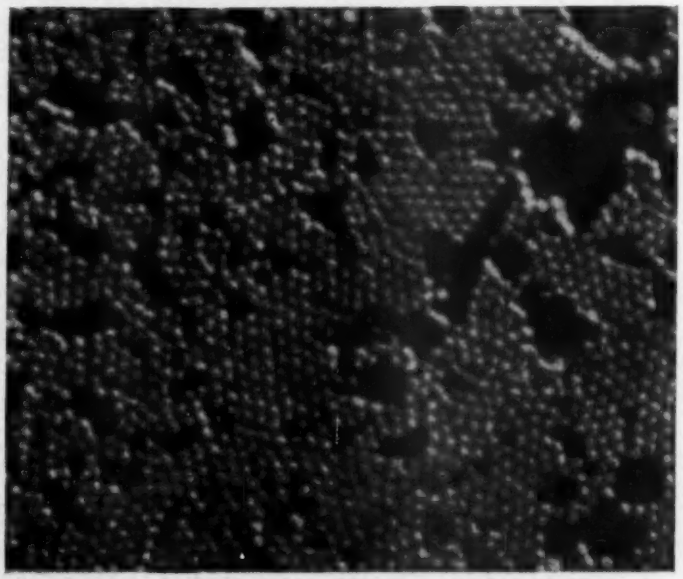
Swine brucellosis tests conducted by the Illinois Department of Veterinary Pathology totaled 472 in 18 herds during January and 354 in 22 herds during February, 1946.

The Virus Molecule



By means of a gold plating process, a new technique in the use of the electronic microscope, Robley C. Williams and Ralph W. G. Wyckoff, University of Michigan, have photographed the micromolecules of the bushy stunt virus which, heretofore, were beyond the lower limits of even that powerful magnifier.

—Thanks to Science News Letter

Feline Infectious Leucopenia—Gastroenteritis—Distemper

In urban centers or laboratories, where conditions are favorable for the spread of infections, cats under 1 year old suffer from a virus disease conveniently called *typhus* which is now distinguishable from the cat distemper of Hindle and Findlay (Britain), and the gastroenteritis of Verge and Christoforoni (France). Being characterized by a low white cell count, the disease was named *leucopénie infecteuse* by Lepine and (Miss) Sautter of the Pasteur Institute of Paris.

In 1936 Kikuth *et al.* (Germany), in studying a cat ailment manifesting a low white cell count, named the disease *Aleukozytose.* In 1937 Hammon and Enders, investigating a disease that was ravaging their laboratory cats, named it aleucocytosis and later panleucocytosis of cats. When Lawrence and Sylverton (U.S.A.), in 1938, found blood of affected cats showing a leucocyte count as low as 350 per mm.^{3}, they gave the disease the name of spontaneous-agranulocytosis. Thus, there are three virus infections of cats bearing clinical similarity, namely: cat distemper, infectious gastroenteritis, and infectious leucopenia. Although the latter has been heretofore identified only in laboratories and catteries, there is no reason to believe that it does not exist, unidentified, in routine clinical work. The fact that some of the exposed laboratory animals are refractory indicates immunity from a previous attack, since immunity follows recovery from natural or experimental infection. Field cases of "typhus" investigated are proofs to that effect.

Symptoms.—The period of incubation is from five to twelve days. The temperature runs from 39 to 41 C. (102.2 to 105.8 F.), while the typhoid state develops along with anorexia, prostration, moaning, gasping, and miserable aspect. The coat is staring and the skin inelastic. Later, there is vomiting, diarrhea, coryza, and conjunctivitis. As death approaches, the temperature drops to subnormal. The course is short—several days.

Blood Dyscrasia.—The leucocytes gradually diminish from the beginning. Because the polynuclear neutrophiles disappear at the beginning and the mononuclears remain, the disease has been mistaken for an agranulocytosis. In the cases studied, during the first hours, there was an increase first in lymphocytes and monocytes and, later, a decrease in the same order. The average leucocyte count was 3,000, a decrease from a norm of 10,000 to 20,000. In some of the cases, the leucocytes had entirely disappeared. While there were losses of 1 to 3 million red cells, the changes in that respect were less marked. The virus appears to attack first the granulocytes, then the mononuclears, and finally the erythrocytes.

Lesions.—Save for congestion of the small intestine, inflamed Peyer's patches, and a semiliquid state of the marrow near the epiphysis, there were no macroscopic changes. *Per contra,* there were interesting microscopic lesions. Glandular cells and others stained with phloxine-blue of methylene revealed brick-red inclusions composed of elementary bodies arranged like a horseshoe around the nucleoli. A fibrillary network nearly devoid of cells developed in the marrow. When the leucopenia was acute, white cells had disappeared.

The disease is so contagious in catteries that all attempts at isolation are futile. All secretions and discharges are virulent for young cats used experimentally. The respiratory and digestive tracts ought to be portals, though lice have been suspected of being carriers. The virus is host specific, passes through Berkefeld V and N candles, and seems to resist external exposure for a long while. The immune mother confers immunity to her kittens lasting from a month to a month and a half. The blood serum of immune cats may be employed for preventive or curative purposes. Doses of 5 cc. protect against the severest inoculations. Therapeutically, three, 10-cc. doses at two-day intervals suffice, even for grave cases. Formolized spleen tissue (3 : 1,000) injected at seven-day intervals and a virulent dose of virus injected seven days after the last one confer immunity of indefinite duration.—*Prof. Brion: Une maladie sans doute fréquente et méconnue—La Leucopénie infecteuse des chats. (A Disease without doubt Frequent but Misunderstood —Infectious Leucopenia of Cats.) Rev. Path. Comp. et Hyg. Gén. 45, (Nov.-Dec. 1945):369-371 An abstract.*

NUTRITION

Lantana Poisoning in Cattle

D. A. SANDERS, B.S.A., D.V.M.
Gainesville, Florida

FOR A NUMBER of years, reports have been received at the agricultural experiment station from veterinarians and livestock owners regarding a peculiar, and often fatal, condition that affects both beef and dairy cattle in many areas of the state. Upon investigating the condition and conducting certain experiments, the cause has been found to be plant poisoning associated with photosensitization resulting from the cattle eating *Lantana camara* L. Blum[1] recently has assembled scientific information on the photodynamic action and diseases caused by light. The toxic effects of *L. camara* on experimental sheep have been reported by Stein and Van Der Walt[2] in South Africa. These investigators refer to experimental work conducted with the plant in other parts of the world. Louw[3] isolated the photosensitizing substance contained in *L. camara* and proposed to name it lantanin.

The Lantana Plant.—The species of Lantana are classified as ornamental shrubs belonging to the family Verbenaceae. Some 60 species occur in tropical and subtropical America and in South America. Species of the plant occur in the sandy soils of the Atlantic and Gulf coastal plains from Florida and Georgia to Texas. *L. camara* and closely related species are common in central and southern Florida. The flowers occur in clusters of mixed combinations of yellow, white, and red. In many sections of Florida, Lantana has escaped from cultivation. The plant is found widespread in the vicinity of abandoned homesteads, waste places, on ditch banks, in hedge rows, and in many pastures and ranges. It is thought that birds or other animals are responsible for scattering Lantana seed, thus facilitating its spread.

Fig. 1—Desquamative or exfoliate dermatitis affecting the muzzle and adjoining tissues which is characteristic of chronic Lantana camara L. poisoning.

Symptoms of Lantana Poisoning.—*L. camara* contains substances that sensitize the skin of animals eating it to the ultra-

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The author is veterinarian at the Agricultural Experiment Station of the University of Florida, Gainesville.

violet light rays. The plant also contains substances that are irritating to the gastrointestinal tract. Severity of the condition seems to depend upon several factors, including the amount of plant material consumed in relation to the weight of the animal, sunlight intensity, and possibly the stage of growth of the plant that is eaten.

Fig. 2—The affected eye of a yearling, characteristic of chronic Lantana poisoning.

The toxic effects of Lantana usually occur as a chronic illness extending over a period of several weeks, although manifestations of an acute form have been observed under natural conditions on several occasions. Symptoms of fatal acute poisoning usually consist of severe gastrointestinal disturbance, accompanied by intestinal hemorrhage, marked weakness, icterus, and death within three or four days. Cattle that overcome an acute attack, and those that do not consume sufficient plant material to produce sudden illness, may develop symptoms of chronic photosensitization. Under some circumstances, a mild, chronic form is observed in which the clinical lesions are confined to relatively small areas of nonpigmented skin. Severe, chronic forms involve large portions of the skin, including both pigmented and nonpigmented areas. In these instances, there occurs a general icteroid condition of the body together with exfoliative or desquamative dermatitis and conjunctivitis. The inflammatory condition is accompanied by yellowish discoloration and itching of the skin of the ears, neck, shoulders, legs, udder, escutcheon, or other body surfaces. The skin of affected areas becomes hard, dry, and painful. The skin often cracks and has a tendency to peel and fall away in shreds, leaving raw areas exposed. Affected animals lose weight and, depending upon severity of the condition, may become greatly emaciated.

A severe dermatitis frequently affects the nasolabial region. The inflammation may extend to the surrounding area, including the mucous membrane and deeper tissues of the nasal passage and the oral cavity. The skin of the muzzle becomes yellowish or orange and, within a few days, dry, hard, and painful. The affected tissues crack and develop deep fissures which separate the affected skin into encrusted or mummified areas. These dead layers of skin crusts may remain fixed to the deeper tissues of the muzzle for several days. They finally become completely detached, leaving the muzzle as a raw, pink, painful surface. In these chronic cases of photosensitization, the mucous membrane and deeper tissues of the nostrils appear swollen, dry, and painful. These tissues become partly detached, curl up, tend to occlude the nasal passage, and cause difficult respirations. The mucous membrane and submucous tissues of the oral cavity, including the cheeks, tongue, and gums, become ulcerated. Affected animals refuse feed, grind their teeth, cease to ruminate, drool, and have an elevated temperature. Such animals become thin, weak, and anemic. The severe constipation which accompanies this form of Lantana poisoning results in painful straining in defecating, partial eversion of the rectal mucosa, and passage of blood-tinged pseudomembranes. Complications that frequently develop are conjunctivitis, photophobia, corneal opacity, matting of eyelids, screw-worm infestation, and bacterial infection of the affected areas. A mild, chronic form may occur in which many of the above symptoms may be absent or much less severe in character.

Postmortem Lesions.—The most prominent lesions observed in acute Lantana poisoning consist of severe gastroenteritis, blood coagulums in the digestive tract, icterus, subcutaneous edema, subplural and subepicardial hemorrhages. Animals that succumb to the chronic form show the characteristic external lesions. The carcass appears emaciated and icteric. Large areas of hard, dry, cracked, and partially detached skin may occur over the body surface. The subcutaneous tissues are yellowish and edematous. There is a stasis of intestinal contents of the cecum and colon, the feces appearing as hard, dry pellets intermingled with partially coagulated blood and pseudomembranes. The liver tissues are pigmented and undergoing various stages of degeneration.

Amount of Plant Material Necessary to Produce Poison.—Investigations made on premises where Lantana poisoning occurred indicated that small quantities of the plant cause serious illness when eaten under natural conditions. In many instances, the amount of material consumed may be so small that it fails to arouse suspicion or is entirely overlooked unless careful search is made for evidence of the plant having been browsed. When poisoning occurs on large fenced or open ranges, often the owner is not aware of the presence or location of Lantana in the vicinity. Experimental feedings made with the plant show that amounts as small as 3/4 to 1 lb. of the mature, frosted and dried leaves are sufficient to produce typical symptoms of chronic poisoning of five weeks' duration in animals weighing 400 lb. that are confined in the sunlight.

Conditions under Which Poisoning Occurs.—The circumstances under which Lantana poisoning occurs in cattle correspond to those usually encountered where poisonous plants are eaten. Poisoning often occurs among cattle which have been moved recently from one vicinity and placed on unfamiliar surroundings where the plant is growing. Poisoning may occur during dry weather when forage is scarce or during the fall and winter months on premises where provisions have not been made for suitable or adequate forage. Cattle which have become familiar with the plant by long association do not usually eat it and therefore are seldom affected.

Treatment of Lantana Poisoning.—Until more information is available regarding the exact nature of the poisoning process, nothing can be offered in the way of specific medication. In many instances, encouraging results have been obtained through symptomatic treatment. Animals affected with Lantana poisoning should be kept out of direct sunlight and made as comfortable as possible. Fresh drinking water and soft feed should be provided.

Prevention.—Cattle which are to be moved from one vicinity and placed on unfamiliar grounds where Lantana grows should be watched very carefully, as poisoning frequently occurs under these conditions. It would be desirable to destroy the plant, by grubbing or other means, before placing cattle on unfamiliar locations. In some instances, it may prove desirable to fence off areas where the plant is growing to avoid danger of losses. Sound animal husbandry practices and farming methods that insure suitable forage for livestock are essential in preventing such losses.

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Nutritious Grass

In a recent Texas experiment, it was found that treating a test soil with heavy applications of superphosphate raised the phosphoric acid content of grass from a level where it was deficient (under 0.33%) for the proper nutrition of range cattle, to a level well over the requirement, (or as high as 0.47%). Light applications of superphosphate increased the yield of grass, but did not raise the phosphoric acid content of the grass to a comparable extent. The heaviest applications used had relatively little further effect on yield of grass, but did raise the phosphoric acid content of the forage to a highly nutritious level. —*Western Livestock Journal.*

Pyridoxine, B_6, enables the body to utilize proteins, especially the amino acid, tryptophane, according to California experiments.

EDITORIAL

Feed for Animals Is Meat and Milk for Man

The finest spirit of charity cannot desert common sense and remain permanently useful to mankind. For instance, it would be unpopular just now to tell the congregation that shifting to the Asiatic diet in order to relieve hunger among unfortunate Europeans might be committing an unpardonable sin. In the light of all known human history, there is heresy aplenty in prescribing a remedy for under-nourishment that is worse than the disease—meaning the cereal-vegetable dietary to which congested populations are driven to eke out an existence on earth, while time gradually eliminates them or takes them through centuries of appalling misery and suffering, such as is staged today in certain Asiatic countries. If that is none of our business, neither is spreading plagues.

To be brutally impolite, advocating cereals to replace meat and milk because some calories are lost in the production process is loose talk, manifestly so. It is motion lost, in chasing straws in the wind of a great misfortune. Better to allocate less but better food to the under-nourished than to start all mankind back to the level which the more resourceful races left behind in central Asia at the beginning of recorded history.

Time is relative and taking profit from the past is an uncommon, but happily, not an entirely lost, human trait. Towering minds will delay mankind from sinking back to the primitive savage. In a very short time (it is already apparent), we westerners, meaning occidental people, will feel kindly toward the Japanese for having had the foresight of seizing the instrument that made the Occident strong and the Orient weak and, in effect, servile. Japan rose like a mushroom out of an intellectual desert through the lure of meat and milk which its scientists did not overlook in their service to an ambitious government. Neither they nor their work is unknown in veterinary science. It is foreseeable that the American white crosses from Hawaii to New Guinea will be forgotten long before the rehabilitated Orient forgets that Japan's chase for meat and milk was the starting point of its reformation. Neither science, industry, nor livestock farming can be deserted in a country's advancement, whether the union of the three is achieved by war or maintained in peace.

There is, of course, no thought of keeping the American people on the Asiatic diet, but the trend is in the wrong direction, however analyzed. It reckons only on the food that will keep people alive, not on a diet that keeps them vigorous, intelligent, and contented.

It has been only when famine affects millions seriously that the world sits up to listen and to proffer charity. The millions who go to bed hungry every night through years and years are unnoticed by the busy, well-fed parts of the world, although these are the ones who spell deterioration of the cereal eaters. What of India? you'll ask. That one is easy. It's a country with a large livestock population that eats feed but does not provide much food for the people. India is as vegetarian as rice-fed China and others. But, all that is not here nor there for this verbal spasm. In order to ship calories abroad rather than reducing our livestock population, it would be more charitable to occidental people and particularly ourselves were our animal production kept at a high enough level to supply the hungry with more meat and milk.

What is the starvation so glibly told by press and radio? It is as ill-defined in the public mind as it is deeply impressed upon the public conscience. Starvation signalizes mass morbidity rather than wholesale mortality. It is the state brought about by subnormal caloric intake, the forerunner of broken resistance and physical strength, impaired endurance, intelligence, and productivity, and a reduced level of human

behavior which spell lasting deterioration. Wheat bread, corn pone, and oatmeal porridge will not prevent all that if unaided by foods of animal origin.

In the production of food, physical strength is a significant factor whether the tool used to produce it is a hoe or a tractor-drawn implement. A study made by workers of the University of Wisconsin revealed that the productivity of a farmer and his wife decreases 25 per cent between the ages of 40 and 60 years, through the decline of physical endurance (*Hoard's Dairyman*). Using 36 volunteers, the laboratory of physiological hygiene, University of Minnesota, measured the effect of "starvation" on body and mind (*Science Digest*). Although the findings are not extremes, they *do* illustrate that vigor is a prime factor to be considered in the rehabilitation of hungry populations. In short, if we are to help in the rescue of starving millions, a better result will be attained by keeping our livestock population at a high level. What of the vast tonnage of steers and lambs that comes to the feedlots before they have eaten an ounce of material edible for man? Deserts and mountain slopes provide human food only if grazed by ruminants. When this vast source of food supply is abandoned to wildlife and folks have learned that it is cheaper and easier to live on cereals and vegetables, we are unconsciously starting in the general direction taken by the backward countries. It has happened before because, just as now, knowledge of the human-animal relationship in the progress of mankind is sketchy, superficial, incomplete, with none but the veterinary profession trying to work out the value of X.

The National Poultry Improvement Plan

S. S. Vickers (*Poultry Tribune*, Feb. 1946) wonders whether poultrymen understand the operations of the plan established by the federal government in 1935 to help them develop their enterprise on a scientific basis—The National Poultry Improvement Plan which 47 out of the 48 states have adopted and put to work. That being the case, it seems apropos to wonder whether veterinarians are not also in need of information on the undertaking.

The plan, as it has been developed up to the present time, is divided into two grand divisions designated (1) Breed Improvement and (2) Pullorum Disease Control, to wit:

1) *Poultry Improvement* refers to the division of flocks by stages, classified as (1) U. S. Approved, (2) U. S. Certified, (3) U. S. Record of Performance, (4) U. S. Register of Merit. In poultry literature, the last two are abbreviated R.O.P. and R.O.M.

2) *Poultry Disease Control* classifies flocks also into four stages, namely: (1) U. S. Pullorum Tested, (2) U. S. Pullorum Controlled, (3) U. S. Pullorum Passed, (4) U. S. Pullorum Clean.

While these eight terms are quite definitive, the methods of attaining these ratings set down in the governing regulations should be kept in mind by veterinarians engaged in poultry practice. Literature is obtainable from the U. S. Bureau of Animal Industry, originator and sponsor of the plan. The details are too lengthy to reprint here.

On various occasions, the JOURNAL has pointed out that veterinarians have been called upon to treat and prevent disease among the different classes of farm animals just as soon as they were found competent to do so, and no sooner. One after another, cattle and hogs and sheep and dogs, and now poultry, were taken into the scope of veterinary practice in about that order through the years of its growth on a scientific basis. Why should a livestock farmer have called a veterinarian to treat his cattle in the days of murrain and hollow horn, or his hogs when cholera accounted for every morbidity of the hoglot, or his chickens when neither he nor the doctor knew the difference between chicken pox and bumble foot, and, conversely, why shouldn't he do so if his veterinarian knows the answers about poultry diseases better than anyone else?

True to the JOURNAL'S contention, poultry practice is creeping into the clinical horizon along with knowledge and skill, and no one can stop the trend nor step it up on any other basis. That is to say, the community practitioner will be its poultry doctor as soon as he has the "know how," and when he has that rating he will not be able to dodge poultry practice even if he wants to. Keeping in touch with the National Poultry Improvement Plan is keeping abreast of the times.

The Log of the Profession

The printed proceedings of the associations, from the smallest local to the biggest international, make up the contemporary chart of the profession's voyage. Each one helps to write in the rate and the distance of travel and to indicate to what point the ship has arrived. That is why the officers of the organizations, faithful to their trust, should not betray their electors by failing to report, for publication, the proceedings of their stated sessions. That is why the duteous editors, mindful of the present and the tribulations of their successors of unborn generations, dote on publishing the details of association work. That is why the JOURNAL has established and maintains a section entitled "The News" and, for the convenience of readers of each issue and fact finders of the future, divides it into subsections like "AVMA Activities," "Among the States," "Foreign," "U. S. Government," "Commencements," "Coming Meetings," "Deaths, Births, Marriages," "The Profession and the War," etc.

But of all these, by far the most significant for current and future edification, the reports of association meetings come first, for they tell comprehensively just where, along the voyage, the profession was on a given date. By example, these published reports help to balance the cargo and keep the ship from sailing along with a lot of dunnage instead of usable material,—meaning that association officers are prone to under-estimate the value of association reports submitted for publication. If this is scolding, the reason is not "iffy." Printed programs of coming meetings are valuable but if a report by the secretary does not follow, after the meeting, the published report may be incomplete and sometimes misleading. Speakers may not show up, new ones may be added, and the discussions representing the true sense of the meeting are absent. Printing an association report in the past tense from the announcement, therefore, comes out as a pack of white lies. But, even that (the program) is better than no report at all. It is, at least, an expression of "what's cooking" in that neck of the woods and, with the others, makes up the picture of the passing show.

To illustrate, let us reach for a journal of fifty years ago. Here is the April, 1894, issue of the *American Veterinary Review* (now the JOURNAL of the AVMA) picked up at random. The issue contains quite lengthy reports of the Massachusetts, California, Illinois, and Virginia associations which may be taken as representative of East, South, Middlewest, and West. Gleaning through these secretarial reports, one can draw a true picture of the passing show as of that day in the USA, by these items, namely: "Unethical Practices," "Contract Practice," "Veterinary Practice a Trade, Not Comparable to Human Medicine"—hotly debated on both sides—"Illuminated Letterheads," "Nonthermic Tuberculin Reactors," "Advertising," "Quittor," "Purpura Hemorrhagica," "The Sympathetic Nervous System," "Parturient Apoplexy," "Dentition Diseases," "Fistulous Withers," "Cryptorchid Castration," "Inflammation" and, throughout, vivid discussions on the actions and uses of aconite, belladonna, morphine, eserine, nux vomica, atropine, veratrum, and sodium hyposulphite.

By contrast, a midwestern meeting of 1946 shows: "Turkey Feeding and Husbandry," "Matters of Professional and Scientific Interest," "Reproductive Cattle Diseases—Sterility—Artificial Insemination," "Swine Erysipelas," "Bovine Brucellosis," "Diagnosis of Communicable Diseases of Swine," "Equine Practice," "Poultry Disease Control and the Feed Situation," "Veterinary Postwar Planning," "Dietary Diseases of Swine," and discussions on vitamins, hormones, sulfa drugs, and antibiotic agents. Add a paper or two on small animal diseases and motion films of kindred subjects to round out the typical program of the present time. The two symbolize the problems uppermost in mind at the extremes of a fifty-year period. With programs showing what transpired between them, the progress of the profession is laid on the table with all cards up. Hence this plea for more attention to this significant phase of society work.

When the president strikes his gavel to open a meeting, the audience ought to realize that something important is going to

happen and that what does happen is the fuel that makes the machinery run, provided the overworked secretary sees that it gets into print. To show scientific and professional progress, there is no substitute for the printed proceedings of the associations. The incompleteness of them is as much a reigning fault today as it was once a major deterrent to our progress in world's work. Stirring up lagging public relations programs depends upon them. "It pays to advertise" about tells the whole story.

Philippine Animal Situation

THE EDITORS:

Your editorial entitled "Plagues from the Orient and Elsewhere" appearing in the May, 1946, issue of the JOURNAL attracted my interest and I am writing to allay the apprehension that was evidently created by the letter of Dr. Stanton Youngberg to the UNRRA regarding the possibility of reintroducing rinderpest into the Philippines by the importation of animals for labor in order to rehabilitate the agricultural economy of these islands. Your criticisms are anything but complimentary to the UNRRA. Cognizant of the real situation, however, I should like to state that there is no justification for so much apprehension because all necessary scientific precautions have been taken by the UNRRA and the Philippine Government in this respect. In the first place, the UNRRA has called a conference of veterinary representatives of the Far Eastern Member Governments and of the Military Commands of the Southwest Pacific Area, which was held on Dec. 14, 15 and 17, 1945. In this conference, the Philippines was represented by two Filipino experienced veterinarians, Dr. Vicente Ferriols and Dr. Pedro Sales. The main object of this conference was to discuss the disease problems of each member nation and to formulate rules and regulations regarding the shipment of animals from one country to another, in order to prevent the spread of epizoötics. In the second place, we have now, in the Philippines, a well-organized Veterinary Corps composed of Filipino graduate veterinarians, many of whom have had experience in the past campaign against rinderpest in these islands. And lastly, rinderpest vaccine is now available for immunization of animals at the port of embarkation previous to shipment. In short, with a vaccine for immunization and a background of experience in rinderpest work, there should be little danger that the history of rinderpest in the Philippines will repeat itself.

On the other hand, mechanization of our farms is not possible as has been proved in the past, and the only way to rehabilitate our agriculture and animal industries is by importation of animals under strict veterinary supervision, along with rapid multiplication of the remaining livestock.

s/ A. K. GOMEZ
College of Veterinary Science
University of the Philippines
Manila, P. I.

[The criticism of the UNRRA was based upon information to the effect that a warning about rinderpest from a competent source was not acknowledged, important as it was to Philippine agriculture. After the warning was published, Dr. Youngberg wrote that a reply had been received but was overlooked on account of his illness. It was then too late to avoid the unjust criticism. The UNRRA is, therefore, entitled to our apology.—*The Editors.*]

Opium Production Curbed

Greater control of opium is named as one of the major achievements of the war. The Army has taken control of opium production and distribution in Japan, Korea, and satellite parts of China where dope addiction was deliberately encouraged by the Japanese. Britain has refused to permit the opium shops of Hong Kong, Singapore, and Borneo, the main sources of opium, to reopen. A sharp drop in illegitimate use of this narcotic is predicted. The narcotic habit in the United States has greatly declined. During the First World War, draft rejections on account of dope were ten times higher than for World War II, and present methods of cure are more successful. Modern doctors use much less narcotic medication than the old physicians.

"The Treatment of Small Animals in a Mixed Practice" by Dr. J. H. Krichel of Keokuk, Iowa (JOURNAL, July, 1946), is a revealing documentation of an inevitable trend. The veterinarian who plants himself upon a community shouldn't dodge his obligations to the domestic animals around him. His obligation to them and to his profession is to provide means of rendering unto them all the blessings veterinary science permits, without any discrimination whatsoever in favor of any species, or any branch of the service.

CURRENT LITERATURE

ABSTRACTS

Caprine Contagious Pleuropneumonia Vaccination

A study of vaccination against contagious pleuropneumonia in goats, described as "very complete," led to a vaccinal method that proved to be a universally effective preventive. The product consisted of a maceration of hepatized lung tissue, pleural fluid, and 4 per cent formalin, filtered at twenty-four hours, and used within forty-eight hours in doses of 10 cc. for adults and 5 cc. for kids.—[*Abstract from Encyclopédie Vétérinarie Périodique, 2, (1945-1946); 361.*]

Giant Panda: Coon or Bruin?

Whether the giant panda (*Ailuropoda melanoleuca*) belongs to the bear (URSIDAE) or the raccoon (*Procyon lotor*) family was studied on the brain of a 205-lb. panda that died at the Bronx Zoo in October, 1945, from an acute paralytic enteritis and peritonitis at the estimated age of 5 years. Abundant calcareous nodes of the dura, not connected with the anatomic study but apparently due to vitamin A deficiency, are described and the dissection clearly illustrated. The general form of the brain was like that of the bear except for certain structural patterns, mainly in respect to size and prominence, which the authors point out.

Naturalists have been interested in the relationships of pandas to bears and also to raccoons. Speaking of the lesser pandas (*Ailurus fulgens*), the Chinese call them bear cats, white bears, spotted bears, and piebald bears, according to markings. But these, in addition to other arrangements, have an alisphenoid canal which pandas and coons do not have. The brain of the raccoon is much more convoluted and contains a rudimentary, ursine lozenge. It resembles that of mink. Pandas and fulgens live under precarious conditions in respect to vitamin A. Although vegetarians, they have the digestive tract of carnivores, somewhat modified. In their native state, they have no adequate source of carotene, nor do their feces show evidence of having consumed such food. Moreover, in captivity, neither of the two show any desire for food containing vitamin A. The conclusion was that, in their natural state, these animals are not properly equipped biologically to convert carotene. Nothing is known about their ability to do so.

The predecessor of the panda in question, which died after intermittent convulsions, was studied at the Neurological Institute of New York, but no similar lesions of the dura were found. A relation between the calcareous lesion and the convulsions was, however, suspected. —[*Fred A. Mettler and Leonard J. Goss, College of Physicians and Surgeons, Columbia University, and the New York Zoölogical Society, respectively, J. Comp. Neurol., 84, (Feb. 1946); reprint, 1-9.*]

Comment by Dr. Goss.—Originally, the Panda was thought to be bearlike. More recently, zoölogists have thought it to be more raccoonlike and that is its present status (in science literature). Perhaps, it will slip back to a bear some day, if anatomical features other than the brain also prove to be bearlike.

Sodium Thiosulfate and Bisulfate for Mange

Nascent sulfur is excellent against mange, but is inconvenient to procure due to the method employed for obtaining it in Russia from the reaction of sulfates and hydrochloric acid. Sodium thiosulfate powder and sodium bisulfate crystals, ground into a powder and used in aqueous solution, dusting powder, ointment, or in soap and water, were also found in critical trials to be effective for killing lice and mange mites in horses and laboratory animals without detrimental effect on these hosts. The treatment was a successful one for horses in unheated stables or outdoors. Ground sodium sulfate rubbed into clipped places with a moist brush and then wetted, followed by a similar application of the thiosulfate, was the routine recommended.—[*M. G. Khatin: Sodium Thiosulfate and Sodium Bisulfate for the Treatment of Mange. Veterinariya (Russia) 21, (1944): 33-35. Abstracted by Rev. Applied Entomol., 34, Series B, Part 1 (Jan. 1946): 11.*]

BOOKS AND REPORTS

U.S.L.S.A.: 49th Annual Report

One is always genuinely thrilled when this annual report arrives with its cargo of up-to-the-minute material on veterinary sanitary science plus its practical application under severe obstacles—political, ecologic, geographic, climatic—and in the face of a vast livestock industry.

Since the United States Live Stock Sanitary Association is delegated to pilot the ship of state over waters troubled by animal diseases, its annual reports are not trivia. They make up a long row of precious tomes on many a shelf which portray quite definitely the progress preventive veterinary medicine has been able to make, despite the bewildering obstacles of our federated democracy. The U.S.L.S.A. is an example of harmonious nationalization *vis-à-vis* the controversies of interstate police work. It's the country's F.B.I. engaged in apprehending a major enemy through coöperative effort.

Moreover, these annuals have the ring of authority and are not cluttered with half-baked theory. Each one is a prize package of reading matter built from work accomplished, or in the offing, on the handling of threats to the livestock and poultry industries. What of anaplasmosis, piroplasmosis, mastitis, tuberculosis, brucellosis, swine erysipelas, hog cholera, worm parasites, Newcastle disease, rabies vaccination, encephalomyelitis, and miscellaneous problems of current interest? Read these reports and be abreast of the times. One can think of no substitute because none exists.

Besides portraying contemporary advancement in the operations of veterinary medicine through nearly fifty years, these reports also display marked literary improvement, and better organization of the text material.—[*Proceedings Forty-ninth Annual Report of the United States Live Stock Sanitary Association. Edited by Secretary R. A. Hendershott. Trenton, N. J. Cloth and paper. 205 pages. Waverly Press, Inc. Baltimore. 1946. Price $2.00. Free to members.*]

New Drugs

This is a manual on the laws and regulations pertaining to the production and marketing of new drugs—a guide for the producers and dealers of drugs, foods, cosmetics, and devices without the omission of any of the details regarding composition, safety, labeling, therapeutic claims, critical tests, etc., required under federal, state, and city laws, ordinances, and supervision, together with the official rules of the Council of Pharmacy and Chemistry of the American Medical Association. To the clinic, this book gives an insight into the security surrounding the products used in the practice of medicine in this country. To the producer or prospective producer, it must be handy to have such a compilation of statutes and their offspring between the covers of a book.—[*New Drugs. By Arthur D. Herrick, with a foreword by Austin E. Smith, secretary of the Council of Pharmacy and Chemistry, American Medical Association. Cloth. 303 pages. Revere Publishing Company, New York 4, New York. Price, $4.00.*]

Annual Review of Physiology

Instead of skirmishing with loose pickups the year around to make up a dozen monthly magazines, the American Physiological Society, headquarters at Stanford University, publishes its budget of refresher material annually in the form of a bound volume, which, under declared policies, is neither a *compilation* nor a *review* in the generally accepted meaning of these words. The annual Review of American physiologists has more the character of critically evaluated links forged securely onto the chain of physiologic knowledge, or should one say, of selected bricks added to the stature of that biologic science. Anyhow, this book is a precious annual visitor, notwithstanding that, in clinical medicine, the work of the research physiologists may seem like dueling with a stone wall. Quite the contrary, this annual periodical is always a reminder that physiology is either blazing the trail that medicine follows or else stepping in to unravel the new discoveries that medicine stumbles upon in its ramblings; *vide*, in the 1946 issue, the discussions on antibiotic agents, sulfa drugs, genetics, digestion, shock, reproduction, cutaneous physiology, to mention only the subjects of particular interest in clinical veterinary medicine. Other articles cover *seriatum*, developmental physiology, heat and cold, energy metabolism, respiration, liver and bile, kidney, blood coagulation and cytology, lymphatic system, heart, nerve and synaptic conduction, visceral functions of the nervous system, audition, aviation physiology, psychology, applied physiology, and pharmacology.

The editors apologize for the dearth of material from foreign countries due to wartime obstacles well known to the circle of science publications of this troubled period. Yet in the hundreds of references appended to the chapters, a sizable number of them are European.—[*Annual Review of Physiology, Volume VIII, 1946. By the Editorial Committee of the American Physiological Society. Edited by James Murray and Victor C. Hall, Stanford University. Cloth. 258 pages. American Physiological Society and Annual Reviews, Inc., Stanford University, P. O. 1946. Price $5.00.*]

THE NEWS

Main Events of the 83rd Annual Meeting
Hotel Statler, Boston, August 18-22, 1946

Registration.—Advance registration on Mezzanine floor, 2:00 p.m., Sunday, August 18. Full registration facilities will open on Monday morning, August 19, at 9:00 a.m., and continue daily thereafter.

Executive Board Sessions.—Hancock Rm. 9:00 a.m. and 2:00 p.m., Sunday, August 18.

House of Representatives.—Georgian Room, 9:00 a.m., 7:00 p.m., Monday, August 19.

Exhibits Open.—Ball Room Assembly and Mezzanine, 9:00 a.m., Monday, August 19.

Opening Session.—Imperial Ball Room, 1:30 p.m., Monday, August 19.

Nomination of Officers.—At end of Opening Session, Monday p.m.

Women's Auxiliary Luncheon and Annual Meeting.—Copley Plaza Hotel, 12:30 p.m., Tuesday, August 20.

General Sessions.—All day Tuesday, August 20, and parts of Wednesday and Thursday, August 21 and 22.

Section Meetings.—Three of the sections meet simultaneously Wednesday and Thursday mornings at 9:00 a.m.; the other three sections meet at 2:00 p.m. Wednesday and Thursday.

Clinical Depictions.—At various times throughout the meeting.

Annual Banquet, President's Reception, and Dance.—Imperial Ball Room and Georgian Room, 7:00 p.m., Wednesday, August 21.

See the July JOURNAL, pp. 7-15, for preliminary program and details of meeting.

The Boston Statler—1946 Convention Headquarters. (For reservations see page xxviii in the advertising section.)

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

First Listing

ANDERSON, EDMUND N.
67 Marion St., Norwood, Man., Can.
D.V.M., Ontario Veterinary College, 1939.
Vouchers: A. Savage and I. M. Isa.

ASTLE, NEVILLE L.
715 W. Lincoln, Blackwell, Okla.
D.V.M., Kansas State College, 1940.
Vouchers: C. H. Fauks and W. E. Irwin.

BOAST, ROBERT D.
149 Garfield St., Winnipeg, Man., Can.
B.V.Sc., Ontario Veterinary College, 1911.
Vouchers: J. W. Fasken and J. L. Trudeau.

BURKE, JOHN W.
519 N. Main St., Dayton 5, Ohio.
D.V.M., Ohio State University, 1923.
Vouchers: W. R. Krill and P. A. Soldner.

COUCH, J. B.
AAF Reg. & Conv. Hosp., AAFMTC, San Antonio, Texas.
D.V.M., Texas A. & M. College, 1939.
Vouchers: R. A. Culpepper and R. W. Grundish.

COULTER, I. P.
Cuthbert, Ga.
D.V.M., University of Georgia, 1923.
Vouchers: E. E. Chambers and B. E. Carlisle.

CUNHA, RAYMUNDO GURGEL
c/o Brazilian Embassy, 3007 Whitehaven St., N. W., Washington, D. C.
D.V.M., National Veterinary College, Rio de Janeiro, 1935.
Vouchers: M. S. Shahan and W. M. Mohler.

DICK, JOHN M.
234 Sagamore Rd., Havertown, Pa.
V.M.D., University of Pennsylvania, 1946.
Vouchers: M. W. Allam and W. J. Lentz.

ELDREDGE, PHILIP G.
735 Warm Springs Ave., Boise, Idaho.
D.V.M., Iowa State College, 1945.
Vouchers: A. P. Schneider and D. Suplee.

ESPINOSA, JORGE A.
P. O. Box 206 F, Mexico D. F.
D.V.M., University of Havana, 1945.
Vouchers: L. Santa Maria and F. Camargo.

FERNANDEZ, EULALIO
Casilla 5539, Santiago, Chile, S. A.
M.V., Escuela de Medicina Veterinaria, Universidad de Chile, 1935.
Vouchers: J. San Miguel and O. Bastias.

FLORES, CARLOS H.
Casilla 9719, Santiago, Chile, S. A.
M.V., Escuela de Medicina Veterinaria, Universidad de Chile, 1945.
Vouchers: J. San Miguel and O. Bastias.

HILL, ROBERT S.
Grove Hill, Ala.
D.V.M., Alabama Polytechnic Institute, 1944.
Vouchers: I. S. McAdory and C. E. Cox.

HOTCHKIS, THOMAS F.
44 Rupert St., Amherst, N. S., Can.
B.V.Sc., Ontario Veterinary College, 1915.
Vouchers: E. E. I. Hancock and R. M. Archibald.

HOUSTON, JAMES E.
Ste. 1 Heather Apts., Winnipeg, Man., Can.
B.V.Sc., Ontario Veterinary College, 1919.
Vouchers: R. H. Lay and T. Childs.

HUSTER, FRANK J.
2722 S. 16 St., Philadelphia, Pa.
V.M.D., University of Pennsylvania, 1944.
Vouchers: J. W. Moor and J. H. Mark.

KILPATRICK, M. E.
631 W. Main St., Tipp City, Ohio.
D.V.M., Ohio State University, 1924.
Vouchers: W. R. Krill and W. R. Hobbs.

MENGHETTI, VICTOR A.
3rd & Highland Ave., Media, Pa.
V.M.D., University of Pennsylvania, 1945.
Vouchers: W. H. Ivens and F. E. Lentz.

MIMS, JOSEPH B.
Cleburne, Texas.
D.V.M., Texas A. & M. College, 1933.
Vouchers: W. T. Hardy and R. C. Klussendorf.

SANDERS, THOMAS E.
R. R. No. 3, Oblong, Ill.
D.V.M., Terre Haute Veterinary College, 1915.
Vouchers: E. M. Lynn and W. L. Johnson.

WATSON, HAROLD L.
159 Main St., Montpelier, Vt.
D.V.M., Grand Rapids Veterinary College, 1915.
Vouchers: N. H. Howlett and A. F. Ranney.

WHIPPLE, RAY O.
527 N. 10th St., Lebanon, Pa.
V.M.D., University of Pennsylvania, 1916.
Vouchers: J. R. Wiley and J. G. Hardenbergh.

Second Listing

Arbuthnott, John, Portage LaPrairie, Man., Can.
Arosemena, A. A., Box No. 192, Panama City, Republic of Panama.
Burnette, Peter F., East Point, Ga.
Canty, John, St. Johnsbury, Vt.
Colpron, Gerard, St. Constant, Co. LaPrairie, Province Quebec, Can.
Curtis, Charles A., 307 Cornell, Albuquerque, N. Mex.
Dederick, Frederic V., 39 Blake St., Keene, N. H.
Dutton, Clyde E., 475 Main St., Saco, Maine.
Freeman, Arlan E., Rumford, Maine.
Gates, Glenn D., P. O. Box 417, Clarksdale, Miss.
Glaisyer, Arthur R. Jr., Kalaheo, Kauai, Territory of Hawaii.
Hendrickson, Thayer D., 200 N. Walnut St., Little Rock, Ark.
Hinkle, Ross J., 2159 N. Farwell, Milwaukee, Wis.
McDonald, H. F., 1231 Gray Ave., Utica, N. Y.
Osborn, Earl B., 115 W. McDowell Rd., Phoenix, Ariz.

Pokrandt, Otto A., Markesan, Wis.
Rubio L., Francisco, Juan Escutia 101 A Colonia Condesa, Mexico, D. F.
Sharp, Fred H., 207 S. Vassar Ave., Albuquerque, N. Mex.
Tingley, H. J., 399 Sherbrook St., Winnipeg, Man., Can.
Willson, Robert F., 11365 Manor, Detroit 4, Mich.

1946 Graduate Applicants

First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Colorado A. & M. College*

ADAMS, ORA R., D.V.M.
500 W. Laurel, Fort Collins, Colo.
Vouchers: J. Farquharson and K. W. Smith.

BRACKEN, FRANK K., D.V.M.
119—10th Ave., N., Twin Falls, Idaho.
Vouchers: R. F. Bourne and K. W. Smith.

BRALEY, EDWARD L. JR., D.V.M.
380 Wadsworth St., Lakewood, Colo.
Vouchers: K. W. Smith and J. Farquharson.

BURLEIGH, GLENN B., D.V.M.
4413 N. E. 85th Ave., Portland 13, Ore.
Vouchers: J. Farquharson and K. W. Smith.

CHRISTENSEN, JOHN F., D.V.M.
Dept. of Physiology, Colorado A. & M. College, Fort Collins, Colo.
Vouchers: F. Cross and R. Jensen.

CURTIS, ROGER W., D.V.M.
73 State Ave., Alamosa, Colo.
Vouchers: K. W. Smith and J. Farquharson.

DETLEFSEN, HARLAN E., D.V.M.
Ferndale, Calif.
Vouchers: J. Farquharson and K. W. Smith.

FREMMING, BENJAMIN D., D.V.M.
6003 Morningside Ave., Sioux City, Iowa.
Vouchers: K. W. Smith and J. Farquharson.

HAWKINS, WILLIAM S., D.V.M.
Box 57, Yampa, Colo.
Vouchers: K. W. Smith and F. Cross.

HERMAN, ROBERT, D.V.M.
447½ N. Van Ness Ave., Los Angeles 4, Calif.
Vouchers: J. Farquharson and K. W. Smith.

HILL, HAROLD J., D.V.M.
R.F.D. Rt. 1, Hudson, N. H.
Vouchers: H. W. Johnson and K. W. Smith.

HUNTINGTON, LOWELL L., D.V.M.
Wallace, Neb.
Vouchers: J. Farquharson and K. W. Smith.

JACKSON, RAYMOND S., D.V.M.
1319 W. Mulberry, Fort Collins, Colo.
Vouchers: H. W. Johnson and K. W. Smith.

JOURDAN, RUSSELL H., D.V.M.
531 S. 52 St., Omaha, Neb.
Vouchers: H. W. Johnson and K. W. Smith.

JUDISH, FRANK J., D.V.M.
5495 N. Federal Blvd., Denver, Colo.
Vouchers: I. E. Newsom and J. Farquharson.

KNAUS, DALLAS H., D.V.M.
Rt. 2, Longmont, Colo.
Vouchers: J. Farquharson and K. W. Smith.

LINFOOT, JANET M., D.V.M.
R.R. 2, Box 3211-P, Redwood City, Calif.
Vouchers: J. Farquharson and K. W. Smith.

LINFOOT, WILLIAM R., D.V.M.
R.R. 2, Box 3211-P, Redwood City, Calif.
Vouchers: K. W. Smith and J. Farquharson.

LIPE, WILLIAM I., D.V.M.
101 Kenwood Dr., Pueblo, Colo.
Vouchers: J. Farquharson and K. W. Smith.

MCCONNELL, ROY JR., D.V.M.
Monte Vista, Colo.
Vouchers: J. Farquharson and K. W. Smith.

MEYERS, HAROLD F., D.V.M.
326 Santa Cruz Ave., Modesto, Calif.
Vouchers: K. W. Smith and J. Farquharson.

MORELAND, GEORGE W., D.V.M.
Box 165, Plains, Texas.
Vouchers: J. Farquharson and K. W. Smith.

NORTON, E. S., D.V.M.
c/o Veterinary Hospital, Colorado A. & M. College, Fort Collins, Colo.
Vouchers: J. Farquharson and K. W. Smith.

PAVETTI, LOUIS P., D.V.M.
2261 N. Linden Ave., Trinidad, Colo.
Vouchers: H. W. Johnson and J. Farquharson.

PETERSON, KERMIT J., D.V.M.
628 S. Mason, Fort Collins, Colo.
Vouchers: J. Farquharson and K. W. Smith.

POULSON, ROBERT L., D.V.M.
253 S. 6th E., Salt Lake City, Utah.
Vouchers: H. W. Johnson and K. W. Smith.

RAISBECK, MERL E., D.V.M.
R.R. 1, Box 234, c/o C. A. Jeffers, Loveland, Colo.
Vouchers: J. Farquharson and K. W. Smith.

SHINABARGAR, JEAN D., D.V.M.
260 Eaton Dr., Pasadena, Calif.
Vouchers: C. P. Zepp, Jr. and K. W. Smith.

SMITH, MAX B., D.V.M.
306 W. Laurel, Fort Collins, Colo.
Vouchers: J. Farquharson and K. W. Smith.

STRANDBERG, HILDING M., D.V.M.
163 Cook St., San Francisco, Calif.
Vouchers: J. Farquharson and K. W. Smith.

THOMAS, CLYDE L., D.V.M.
Rexburg, Idaho.
Vouchers: J. Farquharson and K. W. Smith.

THOMAS, JAMES A., D.V.M.
R.R. 2, Spanish Fork, Utah.
Vouchers: J. Farquharson and K. W. Smith.

THORNBURG, ROY M., D.V.M.
P. O. Box 576, Burley, Idaho.
Vouchers: J. Farquharson and K. W. Smith.

Cornell University*

BARDWELL, ROBERT E., D.V.M.
Wolf Run Farms, R.R. No. 2, Lexington, Ky.
Vouchers: E. Sunderville and H. L. Gilman.

BATCHELDER, ROGER W., D.V.M.
410 Elmwood Ave., Ithaca, N. Y.
Vouchers: J. N. Frost and J. D. Wheat.

BRIGHTENBACK, GEORGE E., D.V.M.
Windsor, Vt.
Vouchers: H. C. Stephenson and H. J. Milks.

BROWN, PHILIP R., D.V.M.
R.F.D. No. 1, Vassalboro, Maine.
Vouchers: P. R. Baird and H. C. Stephenson.

COHEN, HUNTER, D.V.M.
89 Forest Park Ave., Springfield, Mass.
Vouchers: H. C. Stephenson and M. W. Cohen.

DELANO, RAY O. JR., D.V.M.
R.F.D., Duxbury, Mass.
Vouchers: H. C. Stephenson and A. G. Danks.

DENK, ADOLPH J., D.V.M.
11 S. William St., Pearl River, N. Y.
Vouchers: J. A. McBee and H. C. Stephenson.

DOREMUS, HENRY M., D.V.M.
Jacksonville Rd., Towaco, N. J.
Vouchers: H. M. Doremus and H. C. Stephenson.

DORN, SAUL J. D.V.M.
1023 E. State St., Ithaca, N. Y.
Vouchers: D. W. Baker and H. J. Milks.

FIELD, ROBERT A., D.V.M.
317 Elmwood Ave., Ithaca, N. Y.
Vouchers: H. C. Stephenson and M. E. Mitter.

FORSYTH, RODNEY A., D.V.M.
Oakfield, N. Y.
Vouchers: J. H. Whitlock and J. H. Gillespie.

FOUNTAIN, EDMUND L., D.V.M.
349 Bleecker St., Gloversville, N. Y.
Vouchers: R. R. Birch and H. H. Dukes.

HABERMAN, JULIUS J., D.V.M.
409 Dryden Rd., Ithaca, N. Y.
Vouchers: H. J. Milks and H. C. Stephenson.

HOFFMIRE, JAMES H., D.V.M.
Trumansburg, N. Y.
Vouchers: M. G. Fincher and J. N. Frost.

ICKEN, DONALD F., D.V.M.
Western Highway, Blauvelt, N. Y.
Vouchers: H. C. Stephenson and W. J. Gibbons.

IRVING, ELWYN L., D.V.M.
Boise Rd., East Aurora, N. Y.
Vouchers: J. N. Frost and H. C. Stephenson.

JENKINS, CHARLES M., D.V.M.
New Paltz, N. Y.
Vouchers: H. J. Milks and H. C. Stephenson.

KAPLAN, WILLIAM, D.V.M.
184 Monroe St., New York, N. Y.
Vouchers: H. C. Stephenson and C. E. Hayden.

KIRK, ROBERT W., D.V.M.
8 Woodmere Rd., Stamford, Conn.
Vouchers: H. H. Dukes and G. Danks.

LOVE, THOMAS J., D.V.M.
Watkins Glen, N. Y.
Vouchers: H. C. Stephenson and H. L. Gilman.

LYNCH, DONALD R., D.V.M.
Centenial Ave., Brockport, N. Y.
Vouchers: J. A. McBee and H. C. Stephenson.

MCAVOY, BYRON G., D.V.M.
526 Stewart Ave., Ithaca, N. Y.
Vouchers: H. C. Stephenson and S. J. Roberts.

MCCANN, JOHN W., D.V.M.
523 Seneca St., Oneida, N. Y.
Vouchers: H. C. Stephenson and H. J. Milks.

MEADE, JANET A., D.V.M.
70 Greendale Rd., Scarsdale, N. Y.
Vouchers: H. J. Milks and H. C. Stephenson.

NUSBAUM, SIDNEY R., D.V.M.
1665 Oneida St., Utica, N. Y.
Vouchers: F. H. Fox and H. C. Stephenson.

O'BRIEN, ROBERT W., D.V.M.
Constableville, N. Y.
Vouchers: H. C. Stephenson and H. J. Milks.

OHLHORST, ROY H., D.V.M.
136 Boulevard, Scarsdale, N. Y.
Vouchers: J. A. McBee and H. J. Milks.

PRIER, JAMES E., D.V.M.
23 Berwin Lane, Staten Island 10, N. Y.
Vouchers: C. E. Hayden and F. H. Fox.

RUBIN, GERARD J., D.V.M.
407 Eddy St., Ithaca, N. Y.
Vouchers: H. J. Milks and J. A. McBee.

RYAN, WILLIAM G., D.V.M.
R. D. No. 6, Auburn, N. Y.
Vouchers: H. C. Stephenson and A. G. Danks.

SALK, HERMAN M., D.V.M.
Hunter, N. Y.
Vouchers: C. E. Hayden and H. J. Milks.

SALK, SYLVIA B., D.V.M.
Hunter, N. Y.
Vouchers: H. C. Stephenson and C. E. Hayden.

SAMS, JEANETTE, D.V.M.
2349 Saratoga Dr., Louisville, Ky.
Vouchers: A. G. Danks and J. N. Frost.

SCHENHOLM, CARL L., D.V.M.
Westport, N. Y.
Vouchers: J. N. Frost and H. J. Milks.

SCHIRMER, ROBERT G., D.V.M.
New York State Veterinary College, Ithaca, N. Y.
Vouchers: H. C. Stephenson and H. J. Milks.

STEELE, JOHN R., D.V.M.
Schodack Landing, N. Y.
Vouchers: H. C. Stephenson and H. J. Milks.

TANNEBERGER, FRANK J., D.V.M.
156-07 Sanford Ave., Flushing, L. I., N. Y.
Vouchers: A. G. Danks and J. N. Frost.

Iowa State College

BARNES, LAWRENCE E., D.V.M.
224 Ash Ave., Ames, Iowa.
Vouchers: E. A. Benbrook and H. A. Smith.

BOWIE, MORRAINE C., D.V.M.
Lake City, Iowa.
Vouchers: H. A. Smith and E. A. Benbrook.
CLIFFORD, WILLIAM R., D.V.M.
Guthrie Center, Iowa.
Vouchers: H. A. Smith and E. A. Benbrook.
COLLINS, ARTHUR M., D.V.M.
5959 West End Ave., Chicago 44, Ill.
Vouchers: C. L. Miller and G. E. Ebright.
HERRICK, JOHN B., D.V.M.
1219 Lincoln Way, Ames, Iowa.
Vouchers: L. M. Jones and E. A. Hewitt.
KASTER, MARTIN L., D.V.M.
Cuba City, Wis.
Vouchers: M. A. Emmerson and D. A. Smith.
KERR, JOHN E. JR., D.V.M.
Box 123, Tecumseh, Okla.
Vouchers: E. A. Benbrook and M. A. Emmerson.
LOWTHER, BIRK C., D.V.M.
Clarence, Iowa.
Vouchers: R. Getty and I. A. Merchant.
NELSON, JOHN M., D.V.M.
330 Sycamore Ave., DeKalb, Ill.
Vouchers: E. A. Benbrook and C. H. Covault.
ORMISTON, HOWARD L., D.V.M.
Malcom, Iowa.
Vouchers: I. A. Merchant and R. A. Packer.
POWERS, ROBERT T., D.V.M.
860 N. Bennett St., Geneva, Ill.
Vouchers: G. R. Fowler and C. H. Covault.
RAMSEY, FRANK K., D.V.M.
Veterinary Anatomy, Iowa State College, Ames, Iowa.
Vouchers: E. A. Benbrook and R. Getty.
SCHRAFEL, C. EDWIN, D.V.M.
Highway No. 16 W., R. R. 3, Austin, Minn.
Vouchers: H. A. Smith and E. A. Benbrook.
SHINDEL, GEORGE P., D.V.M.
518 Jackson, Charleston, Ill.
Vouchers: G. R. Fowler and C. H. Covault.
SPURRELL, FRANCIS A., D.V.M.
Dept. of Veterinary Sc., University of Wisconsin, Madison, Wis.
Vouchers: R. Getty and M. A. Emmerson.
THOMPSON, SAMUEL W., D.V.M.
250½ Campus, Ames, Iowa.
Vouchers: H. A. Smith and H. D. Bergman.

Texas A. & M. College

ALLDREDGE, BUD E., D.V.M.
1000 Pine St., Sweetwater, Texas.
Vouchers: F. P. Jaggi and W. W. Armistead.
BROWN, CHARLES D., D.V.M.
1209 Bowie, Amarillo, Texas.
Vouchers: F. P. Jaggi and W. W. Armistead.
NEVIN, ROBERT B., D.V.M.
1104 W. 6th St., Austin, Texas.
Vouchers: R. D. Turk and C. O. Morgan.
TUMLINSON, WILLIAM J., D.V.M.
Box 885, Raymondville, Texas.
Vouchers: R. D. Turk and J. H. Milliff.

Second Listing

Iowa State College

Price, Harvey, D.V.M., Ada, Okla.

Ontario Veterinary College

Hartwick, Karl A. J., D.V.M., Fisherville, Ont., Can.
Morgan, Florence J., D.V.M., Ontario Veterinary College, Guelph, Ont., Can.

Texas A. & M. College

Clark, Clarence A., D.V.M., Hallettsville, Texas.
Daily, Harold I., D.V.M., Simonton, Texas.
Grogan, Earl W., D.V.M., Rt. 2, Deport, Texas.
Hightower, Dan, D.V.M., Box 166, Eastland, Texas.
King, Elmo D., D.V.M., Rt. No. 3, Box 68, Gatesville, Texas.
Kokernot, Robert H., D.V.M., Box 570, Alpine, Texas.
McDermott, Lyle A., D.V.M., Rt. No. 3, Cameron, Texas.
Martin, Jesse R., D.V.M., Box 632, Coleman, Texas.
Moore, Homer J., D.V.M., Box 786, Alvin, Texas.
Tierce, Millard L. Jr., D.V.M., Box 64, Millsap, Texas.
Ward, Ralph D., D.V.M., 2515 Ralph St., Houston, Texas.

U. S. GOVERNMENT

Fur Farming Goes to the USDA.—A long sought change in the administration of the fur-farming industry was made by Congress when it passed H.B.2115 which transfers jurisdiction of domestically raised fur-bearing animals from the Department of the Interior to the Department of Agriculture. The transfer includes the fox, mink, chinchilla, muskrat, rabbit, marten, fisher, Karakul sheep, and others. The new law does not affect wildlife. The bill was signed by President Truman April 30, and went into effect July 1.

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BAI Personnel Changes.—The following transfers, appointments, retirements, and resignations are reported by the U. S. Bureau of Animal Industry.

TRANSFERS

Wayne A. Anderson, from Beltsville, Md., to Washington, D. C.

John A. Hailman, from Charleston, W. Va., to Boston, Mass.

James W. Murdock, from Lincoln, Neb., to Indianapolis, Ind.

Albert C. Nagle, from Little Rock, Ark., to Fort Worth, Texas.

RETIRED

Alexander E. Wight, Washington, D. C.

RESIGNED

Carroll E. Adams, Portland, Ore.

William Z. Burke, Fort Worth, Texas.

Richard H. Davis, Jr., Little Rock, Ark.
John M. Dermody, Omaha, Neb.
R. Cullen Dodds, S. St. Paul, Minn.
Merle L. Farris, Nashville, Tenn.
Lawrence C. Feichtinger, Lincoln, Neb.
William P. Guard, Olympia, Wash.
William K. Harris, Madison, Wis.
William E. Patterson, Kansas City, Kan.
Samuel Pollock, Lansing, Mich.
Robert Richman, Harrisburg, Pa.
Thomas J. Wheelin, Boise, Idaho.
Virgil A. Yount, Denver, Colo.

MEAT INSPECTION DIVISION

TRANSFERS

James T. Johnstone, from San Francisco, Calif., to Washington, D. C.

Ray W. McFarland, transferred from War Department.

B. C. Meade, from So. Kortright, N. Y., to New York, N. Y.

R. J. Robertson, from Los Angeles, Calif., to San Francisco, Calif.

Guy H. Todd, transferred to Bureau of Animal Industry.

APPOINTED

Owen E. Andrus, Salt Lake City, Utah.
W. Alex Ezell, Kansas City, Kan.
G. R. Flack, Philadelphia, Pa.
K. L. Kuttler, Chicago, Ill.
Arnold M. Snyder, Los Angels, Calif.
Philip Tubis, Philadelphia, Pa.
W. S. Young, Baltimore, Md.

RETURNED FROM MILITARY DUTY

J. V. Beasley, Jr., Ft. Worth, Texas.
W. F. Dorgan, Cincinnati, Ohio.
S. M. Dragotta, New York, N. Y.
Morse A. Gates, Omaha, Neb.
Curtis E. Hagler, Seattle, Wash.
T. C. Hinkle, Jr., St. Louis, Mo.
C. F. Prchal, Omaha, Neb.
Jacob B. Richter, Philadelphia, Pa.
M. W. Scothorn, Richmond, Va.
Earl K. Spratt, Omaha, Neb.
Jake Stong, Ft. Worth, Texas.

REINSTATED

M. E. Christensen, Portland, Ore.
H. J. Gohde, Albert Lea, Minn.

RETIRED

C. A. Johnson, Seattle, Wash.
S. A. Turpen, S. St. Paul, Minn.
W. T. Vliott, Oklahoma City, Okla.

RESIGNED

G. L. Foy, Atlanta, Ga.
A. J. Gutknecht, San Francisco, Calif.
Sam L. Hoffer, New York, N. Y.
Allan A. Marks, Detroit, Mich.
Marvin H. Scham, Chicago, Ill.
John W. Smith, Denver, Colo.

Respiratory Disease Reduced.—An oil emulsifying agent which reduces the spread of respiratory disease by inhibiting the scattering of lint, dust, and bacteria in troop living quarters was developed by the U. S. Army during the war. Known as T-13, it was applied to woolen and cotton clothing in the final rinse, to bedding during laundering, and to floors as a spray. The odor is not unpleasant, and it is not irritant to the skin.

A full report may be obtained from the Office of Publication Board, Department of Commerce, Washington 25, D. C.

• • •

Pharmaceutical Survey. — The American Foundation for Pharmaceutical Education and the American Council on Education are preparing to conduct a survey of pharmaceutical education in the United States. A committee has been working on the problem, has issued a short report of the initial survey, and has listed 13 phases to be studied or questions to be answered.

• • •

New PMA Chief.—Mr. Robert H. Shields has been appointed administrator of the Production and Marketing Administration and president of the Commodity Credit Corporation, with Mr. Jesse B. Gilmer as deputy administrator of PMA and vice president of CCC. Mr. Shields succeeds Mr. John B. Hudson who resigned to become deputy secretary-general of United Nations.

• • •

Surgical Instruments Released.—The Surgical Instruments Distributors Advisory Committee approved the fixed price policy and unanimously recommended that sales of surplus technical items be made through a centralized control plant.

• • •

German Medical Research. — Fluorescent screens for infrared telescopes, which may have some application in medical research, are described in a report which may be obtained from the Office of Publication Board, Department of Commerce, Washington. The 73-page report is available in photostat for $1, in microfilm for 50 cents.

A protective "foam suit," which enabled men to keep warm for two or three hours after falling into the sea, is reported in another leaflet.

• • •

Japanese Research. — A proprietary drug called "Migozai" improved night vision of soldiers by 150 to 200 per cent, according to Japanese claims. It was administered as a pill containing vitamin A, crucuron powder, lecithin, calcium phosphate, and sugar. Details are available from the Office of Publication Board, Department of Commerce, Washington 25, D. C.

COMMENCEMENTS

Colorado A. & M. College

The commencement exercises of the Colorado Agricultural and Mechanical College were held on June 17, 1946. In the Division of Veterinary Medicine, R. Scott Jackson was awarded the Borden Foundation Award for scholarship as high man in his division. The following candidates were presented for the degree of Doctor of Veterinary Medicine:

Adams, Ora R.
Bracken, Frank K.
Braley, E. L., Jr.
Burleigh, Glenn B.
Christensen, John F.
*Collingson, R. W.
Curtis, Roger W.
Detlefsen, Harlan E.
Fremming, Benj. D.
Hawkins, William S.
Herman, Robert
Hill, Harold J.
Huntington, L. L.
Jackson, R. Scott
Jourdan, Russell H.
Judish, Frank J.
Knaus, Dallas H.
Linfoot, William R.
Lipe, William I.
McConnell, Roy, Jr.
McMillan, Janet M.
Meyers, Harold F.
Moreland, George W.
Norton, Edmond S.
Pavetti, Louis P.
Peterson, Kermit J.
Poulson, Robert L.
Raisbeck, Merl E.
**Rucker, Ellwyn E.
Shinabargar, Jean D.
Smith, Max B.
Strandberg, H. M.
Thomas, Clyde L.
Thomas, James A.
Thornburg, Roy M.
**Wayt, Lewis K.

*Graduated in December.
**Graduated in March.

Iowa State College

At the commencement exercises of Iowa State College on June 14, 1946, Dean H. D. Bergman presented the following candidates for the degree of Doctor of Veterinary Medicine:

Bailey, James H.
Barnes, Lawrence E.
Bonelli, Wm. G., Jr.
Bowie, Moraine C.
Clark, Charles L.
Clifford, Wm. R.
Collins, Arthur M.
Cooney, Raymond E.
Dahlke, Norbert A.
Dunham, Robert D.
Eckstein, Anton J.
Full, Emmett
Herrick, John B.
Kaster, Martin L.
Kerr, John E.
Lewis, George E.
Lovell, James E.
Lowther, Birk C.
Ludvigson, Dean F.
Magilton, James H.
Masson, Roy N.
Nelson, John M.
Onken, Klaas G.
Ormiston, Howard L.
Powers, Robert T.
Price, Harvey

Graduates, Postwar Refresher Course
June 22, 1946

New York State Veterinary College

CORNELL UNIVERSITY

Ithaca, N. Y.

Top row (left to right)—Lt. Col. G. W. Holmberg, Col. C. M. Rodgers, Maj. W. J. Williams, Capt. F. A. Stepp, Maj. A. M. Michaels, Capt. V. L. Boldt, Lt. H. Maxwell, Capt. M. Feldman.
Middle row (left to right)—Dr. C. W. Van Deusen, Dr. J. W. Richards, Capt. J. W. DeMilly, Jr., Maj. K. W. Downey, Lt. (j.g.) A. H. Droleskey, Capt. E. A. Droleskey, Maj. W. H. Lindley.
Bottom row (left to right)—Capt. H. D. Cain, Capt. G. H. Brumble, Capt. J. T. Gilmour, Capt. E. F. Pallister, Dean W. A. Hagan, Dr. H. C. Stephenson, Dr. E. Aaron, Maj. O. Sussman, Capt. L. A. Wuori. Capt. W. H. Adolph and Maj. W. J. Seagers attended the course but could not be present for the picture.

Ramsey, Frank K.
Schlauderaff, C. H.
Schrafel, C. Edwin
•Shindel, George P.
Spurell, F. A.
Stock, Erskin H.
Thompson, S. W., II
Wykoff, Matthew H.

The honor student in veterinary medicine was Frank K. Ramsey. Dr. Ramsey thereby became the winner of the George Judisch Award.

The winners of the G. G. Graham awards—based on the records of the students' work in clinical practice—were: first prize, Dr. Charles L. Clark; second prize, Dr. Robert D. Dunham.

A graduate veterinarian granted the M.S. degree was Dr. Theodore S. Williams (D.V.M. from Kansas State College) with a major in veterinary pathology.

•Received D.V.M. degree on March 22, 1946.

Texas A. & M. College

At the commencement exercises of the Agricultural and Mechanical College of Texas on May 31, 1946, Dean R. P. Marsteller presented the following candidates for the degree of Doctor of Veterinary Medicine:

Alldredge, Bud E.
Brown, Charles D.
Clark, Clarence A.
Daily, Harold I.
Grogan, Earl W.
Henry, Perrian R.
Hightower, Dan
King, Elmo Don
Kokernot, Robert H.
McCoy, Turney
McDermott, Lyle A.
Martin, Jesse R.
Moore, Homer J.
Nevin, Robert B.
Pfrimmer, Leo H.
Scott, Verne A., Jr.
Sibley, Hobart Q.
Smokler, David G.
Speer, Willie D., Jr.
Tierce, M. L., Jr.
Tumlinson, Wm. J.
Ward, Ralph D.
Westbrook, J. T.
Williams, Firmin E.

Class of June, 1946

New York State Veterinary College

CORNELL UNIVERSITY

Ithaca, N. Y.

First row (left to right)—J. W. McCann, E. L. Fountain, H. M. Salk, S. B. (Mrs.) Salk, Dr. C. E. Hayden, Dr. W. J. Gibbons, Dr. P. Olafson, Dean W. A. Hagan, Dr. H. J. Milks, Dr. D. W. Baker, Miss J. A. Meade, Miss J. Sams, R. A. Field, S. R. Nusbaum.
Second row (left to right)—D. F. Icken, J. R. Steele, R. W. Batcheldor, B. G. McAvoy, D. R. Lynch, F. J. Tanneberger, A. J. Denk, R. G. Schirmer, R. A. Forsyth, G. E. Brightenback, R. E. Bardwell, J. J. Haberman, R. H. Ohlhorst, R. W. Delano, Jr., W. G. Ryan, S. J. Dorn, H. Cohen.
Third row (left to right)—R. W. Kirk, R. C. Rost, C. M. Jenkins, C. L. Schenholm, H. M. Doremus, J. E. Prier, W. Kaplan, J. H. Hoffmire, G. J. Rubin, T. J. Love, P. R. Brown, R. W. O'Brien, E. L. Irving.

If You Did NOT Receive Your June JOURNAL — Please Read This!

Due to some circumstance, so far unexplained, a number of envelopes addressed for the June issue disappeared after they left our circulation department. Unfortunately, there is no way to determine which envelopes were lost. If members who have not received their June JOURNALS will drop us a card, copies will be mailed at once.—AVMA Circulation Department, 600 S. Michigan Ave., Chicago 5, Ill.

AMONG THE STATES

Arkansas

Rendering Plants.—The building of a $30,000 rendering plant adjacent to Little Rock for the manufacture of greases and tankage and the salvage of hides, which would not have escaped the waste basket of the city editor a short time back, gets half a column in an important newspaper—the *Arkansas Gazette*. Included in the article are comments by State Veterinarian Joe Campbell and Director Lackey of the State Resources and Development Commission, the one with his eye on the livestock industry, and the other on the conservation of utilitarian material in these days of shortage of fats, soap, leather, minerals, and proteins which the carcasses of animals provide. The plant, says the clipping, will be located on the Arkansas River half a mile from the city limits, and it will be equipped to collect carcasses and cripples within a radius of a hundred miles. A similar plant is located at Fort Smith.

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Full Time Meat Inspector for Little Rock.—"Things are improving in Arkansas. The following are clipped from the *Arkansas Gazette* of June 8."

"Dr. Thayer H. Hendrickson, veterinarian graduate of Texas A. & M. College, has been employed temporarily in the Meat Inspection Division of the city health department. Dr. Hendrickson will be paid until July 1 from city and state health department funds, according to the city health officer who hopes, however, that a graduate veterinarian can be retained on his staff to assist Dr. T. M. Dick, city veterinarian who is also responsible for milk and dairy inspection. Inspection of slaughter and packing houses is impossible with the present one-man staff."

S/FRANK HURLBUT, *Yellville*.

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State Association.—At a reorganization meeting of the Arkansas Veterinary Medical Association held in the War Memorial building in Little Rock, June 19, Dr. H. T. Shull, Jr., of Texarkana, was elected *president*, Dr. Orris Nipper of Magnolia, *vice-president*, and Dr. C. T. Mason of Little Rock, *secretary*. Dr. Shull's father is president of the Texas Veterinary Medical Association.

California

Inspectors Needed.—An examination will be held for veterinary livestock inspector and another for veterinary meat inspector, positions with a salary range of from $280 to $340. The examinations will be held on August 8, and application blanks may be secured from California State Personnel Board, 1015 L Street, Sacramento.

Meat Inspection Report.—Dr. Geoffrey A. Boyd, chief, Bureau of Meat Inspection, California Division of Animal Industry, has issued a report covering the activities of his department during 1945. Forceful operation is attested by the 31 convictions of violators, with total fines of $3,060 and total sentences of one hundred ninety days.

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Quarter Horse Gains Popularity.—Swift bidding and high prices characterized the annual Pacific Coast Quarter Horse Association sale at Santa Barbara, on June 8. The top mare brought $4,000 and the top stallion $2,800. Ten head brought $18,900 and 45 totaled $40,775.

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The Unpopularity of Luther Burbank.—During his lifetime, Luther Burbank was not warmly hailed by contemporary scientists for several reasons given in a new book entitled *Luther Burbank, a Victim of Hero Worship*, by Emeritus Professor Walter L. Howard, of the University of California. Being somewhat egotistical, of unchangeable mind, and very stubborn, this famous botanist craved recognition which he did not get because of extravagant claims for some of his discoveries by commercial exploiters. His spineless cactus, which was to transform the great American deserts into heavenly meadows, and the wonderberry, which was puffed beyond its merits by promoters of the blue-sky type, were responsible, in part, for his chilly reception among the scientists of his day. Luther Burbank, however, was greatly admired by the public at large, and his name will live long after all of his critics (we know) are forgotten. The Burbank potato alone will do that.

Colorado

Annual Meeting.—The 1946 meeting of the Colorado Veterinary Medical Association was held at Fort Collins on May 23 and 24. The meeting was opened with the address of President A. P. Drew, of Grand Junction, and included the following scientific papers:

Mr. H. R. Lascelles, Manager, Denver County Farm: "Mastitis from the Dairyman's Viewpoint."

Dr. P. C. Brown, A. & M. College: "Incidence of Mastitis in Colorado Dairy Herds."

Dr. John Thimmig, Brighton: "Treatment of Mastitis."

Dr. I. A. Merchant, Iowa State College, Ames: "Milk Sanitation," and "The Veterinary Profession in the Field of Public Health."

Dr. Earl B. Osborne, U.S.B.A.I., Springer, N. M.: "Artificial Insemination, Discussion and Demonstration."

Dr. E. Heiny, Inspector in Charge, U.S.B.A.I., Denver: "Brucellosis in Goats."

Drs. J. R. Naylor, Denver; Lee R. Phillips, Lakewood; and K. W. Smith, A. & M. College: "Small Animal Practice."

There was a small animal clinic and a large animal clinic.

Dr. J. G. Hardenbergh, executive secretary of the AVMA, was the principal speaker at the banquet, choosing for his topic, "Veterinary Medicine in America." Presiding at this meeting was Dr. James Farquharson, president of the AVMA, and a welcome was extended by Dr. Roy M. Green, president of A. & M. College.

Connecticut

Dr. A. T. Gilyard Dies.—Dr. Arthur Thomas Gilyard, of Waterbury, died June 16, 1946, of coronary thrombosis. Born in Seymour, Conn., June 19, 1886, Dr. Gilyard attended public school there, later entering Cornell University from which he received his D.V.M. degree in 1907. He entered general practice at New Haven, later moving to Wallingford prior to

Dr. A. T. Gilyard

coming to Waterbury in 1910 to become associated with the late Dr. Thomas Bland. In 1914, he purchased the practice from Dr. Bland. His second son, Richard T., became affiliated with him in 1935.

Since 1923, Dr. Gilyard had served on the Connecticut State Board of Veterinary Registration and Examination, most often examining in the subject of his greatest interest, veterinary obstetrics.

He had served as president and secretary of the Connecticut Veterinary Medical Association, and resident secretary for the AVMA. He also was a member of the organizing committee for the Twelfth International Veterinary Congress. He was a charter member and a past president of the Waterbury Rotary Club, a thirty-second degree Mason, Commandery member, Knights Templar, and a member of Sphinx Temple of Hartford.

Prior to the establishment of the Veterinary Corps he served with Troop A Cavalry, Connecticut National Guard, as a veterinary surgeon, then designated as a Farrier Sergeant. Always vigorous in legislative matters pertaining to the profession and to the livestock industry, he devoted much time to campaigns for the control and eradication of epizoötic diseases of livestock. In more recent years, he evinced the same enthusiasm for brucellosis and mastitis control.

Arthur T. Gilyard's contributions to the advancement of veterinary medicine were manifold and his memory will be associated with vital progressive phases in the great transitional period of the profession. Throughout nearly thirty-nine years of practice his progressiveness never waned and his mental curiosity ever drove him in search of further knowledge and of greater appreciation and ethical utilization of veterinary science.

Technically, he can be remembered as a clinician who pioneered in general inhalation anesthesia in small animals, cesarean section in the bitch, gastric lavage in the horse, the diagnosis of cecal impaction in the horse, and the common application of the Williams operation for the relief of roaring. Ingenuity and neatness characterized his surgery, precision and attention to details his diagnoses.

He is survived by his wife, Ruth (Stiles) Gilyard, and four sons, Thomas A., Richard T., David F., and Charles H.

s/DR. EDWIN LAITINEN.

District of Columbia

Message from Wilcox.—Honorary Member E. V. Wilcox, of Washington, writes: "I just want to notify you to change my address to 220 Southern Building, Washington, D. C. (former address, Chevy Chase, Md.). The JOURNAL always carries a lot of interesting material. I am glad that Dr. Merillat is writing on the history of the association. It is a lively association and getting livelier every day. I hope to come to the Boston meeting."

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Barbiturate Law.—S.1986 proposing to bring barbiturates under the national narcotic laws passed the Senate. The Bill applies only to the District of Columbia, but H.B.6178 introduced by Congressman Rogers, of Massachusetts, covers the entire country.

Georgia

Coastal Plain Short Course.—The second annual short course for veterinarians, sponsored by the Georgia Coastal Plain Experiment Station, Tifton, was held July 9 and 10. Those attending were welcomed by Director George H. King.

Dr. W. L. Boyd, University of Minnesota,

St. Paul, was the principal speaker, addressing the group on the subjects "Brucellosis" and "Sterility Diseases of Cattle," as well as leading a panel discussion on cattle diseases.

Dr. H. E. Pinkerton, Fort Dodge Laboratories, Fort Dodge, Iowa, discussed "Swine Disease Problems" and led a panel discussion in which Drs. Tom Sutton, Sylvester, L. C. Rossman, Albany, and T. C. Ross, McRae, participated.

The program also included the following speakers:

Dr. C. W. Barber, University of Georgia, Athens: "Poultry Diseases."

Dr. G. W. Riley, Inspector in Charge, Meat Inspection Division, Moultrie: "Municipal Meat Inspection."

Dr. D. A. Sanders, University of Florida, Gainesville: "Some Poisonous Plants of the Coastal Plain."

Mr. Frank Fitch, Extension Dairyman, appealed to the veterinarians to participate more extensively in the mastitis control program.

Dr. David Bartlett, Zoölogical Division, Beltsville, Md.: "Trichomoniasis."

Dr. R. C. Klussendorf, of the AVMA: "Ketosis." He also invited everyone present to attend the AVMA Convention in Boston in August.

"Physiology of Milk Production," the movie featuring Dr. W. E. Petersen, of the University of Minnesota, and sponsored by Purina Mills was shown.

Dr. Wm. L. Sippel, veterinarian in charge of all animal experimental work at the station, acted as chairman and host. Luncheon was served in the dining room of Abraham Baldwin College and a barbecue dinner at the Tifton Country Club.

Idaho

Dean Iddings Retires from Active Duty.—E. J. Iddings, dean of the College of Agriculture, University of Idaho, for the past thirty-five years who began a year of sabbatical leave in November, will return as dean emeritus at its termination. Dean Iddings also held the office of director of the experiment station since 1918 and of the extension service since 1923, and during his tenure became an influential figure in northwestern agriculture. He was replaced by Acting Dean C. E. Hickman, head of the Department of Animal Husbandry.

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Association Meets at Boise.—The Idaho Veterinary Medical Association held its annual meeting on July 1 and 2. The local committee had prepared the following instructive and interesting program:

Dr. J. D. Lee, of Salmon, president, called the meeting to order.

Mr. W. Whillock, mayor of Boise: "Address of Welcome."

Dr. P. S. Hannah, Blackfoot: Response.

Dr. E. A. Barber, U. S. B. A. I.: "Swine Erysipelas."

Dr. Glen Holm, University of Idaho, Moscow: "Erysipelas Vaccination Technique," and "Control of Brucellosis in Swine."

Mr. L. L. Madsen, Utah State Agricultural College, Logan: "Vitamin A in Cattle Nutrition," and "Minerals in the Nutrition of Livestock."

Dr. E. J. Frick, Kansas State College, Manhattan: "Differential Diagnosis and Treatment of Colics of the Horse," and "Subjects in Small Animal Practice."

Dr. B. T. Simms, chief, Bureau of Animal Industry and president-elect of the AVMA: "Liver Flukes," and "Diseases of Dairy Calves." Dr. Simms was also the principal speaker at the banquet, where Dr. L. V. Ruebel, of Jerome, presided as toastmaster.

Mr. Geo. Hersley, Idaho Commissioner of Agriculture, was speaker at the first day's luncheon session. The afternoons of both days were devoted to conducting clinics.

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Large Hereford Calf.—Dr. Robert T. Coffman (WASH '44), of Grangeville, reports the birth of a Hereford bull calf that weighed 140 lb. at birth and 230 lb. at the age of 1 month. This calf measured 34 in. from the top of the shoulder to the ground and 43 in. from poll to tailhead, at birth.

The only help needed by the dam was removal of the placenta; she delivered the calf unassisted. Both sire and dam are purebred and registered.

Dr. Coffman would be interested in hearing of larger calves that have been delivered or recorded by veterinarians.

Illinois

Association Bulletin.—Pursuant to the growing custom of furnishing association members with a new service, the ISVMA publishes *The Illinois Veterinary Bulletin*, a well-written multigram on "what's doing." The June issue tells of the official termination of the state's Procurement and Assignment Service directed by Past President A. E. Bott, the meeting of the Executive Board, news about a conference between the federal Food and Drug Administration and the College of Veterinary Medicine on misbranded livestock remedies, the consultation with Chief Simms at Washington on Newcastle disease, and a list of personals and death notices.

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Illinois-Indiana Association. — The regular annual meeting and fish fry of this veterinary medical association was held at Terre Haute, on June 21, 1946. Dr. H. E. Moses, of Purdue University, Lafayette, spoke to the group about Newcastle disease with emphasis on the research work he did on this subject under the Biological Warfare program.

s/H. E. PAGE, *Secretary.*

Fiftieth Anniversary.—The Chicago Veterinary Medical Association held its golden anniversary dinner at Casa Nova club on the evening of June 12, 1946. Table decorations and appointments, as well as favors for the ladies, were in gold or reasonable facsimile thereof.

Two charter members, Dr. L. A. Merillat and Dr. Robert Gysel, were present and reviewed the founding and the early history of the association, placing special emphasis on the importance of such local associations in solidifying the veterinarian's position in a community and in unifying the thinking and actions of the members.

About 50 veterinarians and their wives assembled for the occasion. The hours after dinner were devoted to dancing.

s/R. C. GLOVER, *Secretary.*

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Eastern Illinois Association.—Members of the Eastern Illinois Veterinary Medical Association met at Champaign, on July 1, to hear Dr. J. A. Henderson, of the University of Illinois, discuss "Artificial Insemination and Related Problems." Dr. Henderson also related some of his experiences in England as a member of the Army Veterinary Corps. Dr. R. W. Merriman, State Division of Livestock Industry, Springfield, discussed "Brucellosis Control."

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Veterinary Faculty Grows.—Dr. L. E. St. Clair has been appointed head of the Department of Veterinary Anatomy in the College of Veterinary Medicine and Chief of Veterinary Anatomy in the Agricultural Experiment Station of the state university. The appointment became effective July 1.

Dr. St. Clair was born at Colona, Ill., was graduated from Colorado A. & M. College in 1935, and spent additional time in the study of anatomy at the universities of Colorado and Minnesota. He joined the staff of Iowa State College in 1937 and completed work on the degrees M.S. and Ph.D. at Ames. He remained there until his transfer to Illinois.

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Drovers Journal Comment.—*Chicago Daily Drovers Journal* for Friday, June 28, carried an editorial headed "Disease Threat Seen," which was based on the JOURNAL editorial for May—"Plagues From the Orient and Elsewhere."

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New Research Society in Chicago.—The National Society for Medical Research is a newly organized group which has as its purpose "the advancement of research in medicine, biology, pharmacy, dentistry, and veterinary medicine." National offices are at 25 E. Washington St., Chicago.

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Straight Thinking.—Legislative affairs discussed by the Executive Board of the ISVMA at a meeting in Peoria, in April, included the big idea of amending the Code Law of the state so as to designate Doctor of Veterinary Medicine as one of the qualifications for the position of Superintendent, Division of Livestock Industry, who heads the livestock sanitary service. The position, for the first time since the Code was enacted back in the teen decade, is now held by former Chief Veterinarian C. E. Fidler.

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Holstein-Friesian Annual.—The 61st annual meeting of the Holstein-Friesian Association of America held at the Hotel Faust in Rockford June 4-5 brought 123 delegates from 45 states and a large crowd of interested members. President W. S. Moscrip, of Minnesota, was reëlected for a fifth term, and 769 new names were added to the membership of 36,117. H. W. Norton, Jr., of Brattleboro, Vt., ancient headquarters of the organization, was reappointed secretary-treasurer and superintendent of advanced registry. The headquarters employs an office force of 175.

The Bureau of Dairying, Beltsville, Md., was taken to task by Editor A. J. Glover of *Hoard's Dairyman* and Professor W. W. Yapp, of the University of Illinois. The breeding work of the Bureau was denounced as "very misleading" (Glover) and a "half-baked scheme" (Yapp). Note was made of Dr. Herbert Lothe's trip to Europe in the interest of Rassmussen estate in Denmark.

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Shod 50,000 Horses.—Dan Ahern, 52, much-sought shoer of swank Thoroughbreds around Chicago tracks, a fifth generation son of his craft (*Chicago Sun*, July 4, 1946) who is reported to have shod 50,000 horses, holds the first license issued under the Horseshoers Act of 1913. At least, he took the first examination held by the newly created board of examiners for horseshoers, shortly after arriving from his native country—Ireland—where, at the age of 14, he was already tacking on shoes at his father's shop in Limerick.

The *Sun* errs in naming the Department of Registration and Education as the licensing body, since that state department did not come into being until several years later.

The Horseshoers Act was the outcome of a vigorous campaign within the craft to eliminate incompetent intruders like (they argued) "the veterinarians had done" at the turn of the century. But when the law had been passed, both masters and journeymen suddenly became aware that one of its provisions was knowledge of "anatomy of the horse's foot." Holy gee, what's that? "Me, who can turn a shoe, tack it on, and pare a hoof with the skill of an etcher, have to learn that stuff? What for?" Anyhow, the very thought caused quite a panic. The unions of masters and craftsmen formed classes and employed teachers from the Chicago and McKillip veterinary

colleges, especially McKillip's. McKillip (*père*), who was not only a veterinarian but also a "village smithy" with a mighty wallop, was quickly brought into the scene. The classes were not interested in the hoof itself. They knew all about the wall, the heels, the frog, the bars, the corns, the quarter cracks, and the seedy toes, but what's inside was quite baffling. There were long names and a complex mechanism to memorize. No one could predict the depths of the coming examination questions. So, some of the teachers brought in pododermatitis septica, podosynovitis aseptica, osteogenic claudication, rotation of the os pedis, ulceration of the os sessamoideum, phalangis tertiae, etc., to the utter dismay of the student body. Local veterinarians were eagerly sought for finishing touches. The Jaffray boys on the West Side, Gysel out in South Chicago, Thwaites in Englewood, and Worms up in Lake View, as the upper North Side was called in medieval Chicago, were explaining what's inside of a horse's foot to anxious callers. It turned out that the examination on anatomy was elementary and passed with flowing colors. The examiners, wisely, paid more attention to the applicants' skill in the shoeing of horses and thereby set a pattern long followed for physicians and dentists, while veterinarians still dote on medical polysyllables as the crucial test of a coming practitioner.

It should be acknowledged here that the law licensing horseshoers in Illinois has been a success despite the replacement of the commercial horse by mechanical motors. The law was the first of its kind. It brought not a little science into a useful art and banished most of the archaic theories and superstitions.

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Pasteur Monument Rededicated.—The monument erected to the memory of Louis Pasteur in Grant Park (Chicago) in 1928 was transferred to Convalescent Park, Medical Center District, with a special rededication ceremony June 10. The monument was financed in the 1920's by a subscription campaign headed by Dr. Frank Billings, famous Chicago physician who was once a student of Pasteur. Hon. Edward J. Kelly, mayor of Chicago, Hon. James H. Gately, president of Chicago Park District, and Hon. Jean Joseph Viala, consul general of France, were among the speakers.

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Fluorine and Dental Caries.—In a study begun in 1939 by the Illinois Department of Health, caries among school children of Evanston, Oak Park, and Waukegan was found to be 2.6 per cent higher than at Aurora, Elmhurst, Joliet, and Maywood. The first group of towns obtain their water from Lake Michigan which contains no fluorine, while the water of the artesian wells of the later group has a fluorine content ranging around 1 part per million.—*From Illinois Health Messenger, Feb. 15, 1946.*

Food Technologists Elect Chicago Chemist.—R. C. Newton, of the Chemical Research Department, Swift & Company, Chicago, has been elected councilor-at-large of the Institute of Food Technologists.

Indiana

Experimental Poultry Farm.—Purdue University has purchased a 130-acre farm, 2 1/2 miles from the campus to be used for carrying out an expanded research program on chickens and turkeys.—*From Poult. Sci., May 1946.*

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Personal.—Mr. J. L. Rogers, Director of Medical Service for Pitman-Moore Company, was recently elected president of the American Pharmaceutical Manufacturers Association.

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Swine Disease School.—Approximately 30 veterinarians practicing in a territory around Crawfordsville attended a short course in swine diseases sponsored by Purdue University and conducted by Dr. R. F. Smith, of Boswell. The conducting of such a school by a practitioner is somewhat of a departure from custom but was successful with poultry and cattle schools in previous years.

Iowa

Veterinary Officer Feted.—Colonel Frank A. Todd, V.C., was honored at an Alumni Day meeting when he was awarded the Alumni Merit Award, presentation of which is an annual event. Since 1932, it has been given each year to an outstanding alumnus for meritorious service in his field and for contributions to the welfare of his fellow men. The award is based upon the work done by Col. Todd in Iceland while stationed there with the Veterinary Corps.

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AVMA Junior Chapter.—The meeting on April 17, 1946, of the Iowa State junior chapter of the AVMA featured Dr. C. C. Franks, chief of the Iowa Bureau of Animal Industry, who gave an interesting talk on "My Experiences as a Circus Veterinarian."

Dr. R. E. Getty was elected faculty advisor of the chapter.

Kansas

District II Meets.—Dr. Byron Quinby, of Larned, took charge of local arrangements for a meeting of veterinarians from District II. The speaker for this meeting was Dr. Allen Brite, of Wichita. Particulars of the meeting were not available in the *Bulletin* of the Kansas Veterinary Medical Association, from which this report was gleaned.

Junior Auxiliary.—Since December, 1940, the women's auxiliary to the Junior American Veterinary Medical Association of Kansas State College has been very active. It was organized for the purpose of promoting social, spiritual, and educational amiability during the years at college and the period following completion of study.

The auxiliary meets once a month at the homes of members or of the veterinary faculty. It is sponsored by the "co-vets" (veterinary faculty wives) from which two members are chosen by the auxiliary to serve as advisors for two consecutive years. The advisors this year are Mrs. Morris Cover and Mrs. Ralph Witter. The officers are Mrs. Samuel Frazier, *president;* Mrs. Fred York, *secretary;* Mrs. George Chaffee, *treasurer;* Mrs. Stanley Jacobs, *publicity chairman.*

The Women's Auxiliary to the Junior American Veterinary Medical Association of Kansas State College

"The auxiliary has been and continues to be a force for uniting veterinary students and their families with their fellow students."

s/MRS. STANLEY JACOBS, *Publicity Chairman.*

Kentucky

Transylvania Medical Library.—*Annals of Surgery* for June leads off with an address delivered before the Southern Surgical Association by its president, Dr. Charles A. Vance, at the annual meeting of 1945. Voiced, among other things, was the subject of famous Transylvania Medical Library at Lexington. In 1780, the General Assembly of the State of Virginia created a land grant "to establish a seminary of learning in the County of Kentucky." In 1791, the seminary took form on a plot donated by the City of Lexington. In 1798, the Transylvania University of the Episcopal Church was organized with a corps of professors who promptly took steps to start a medical department—the celebrated Medical Department of Transylvania University—and to provide its faculty with "imported medical books." An appropriation of $500 was set aside for that purpose. Thus was founded the first school of medicine in the Mississippi Valley (fifth in the United States), and the famed Transylvania Medical Library which, as late as 1930, a committee of the Association (SSA) pronounced the most precious collection of old medical books in this country. Although the medical faculty taught medicine from the start

to such students as came along, no degrees were conferred until 1918. The University's first medical building was erected in 1827. The collection of medical works from abroad appears to have been a veritable obsession of earliest trusteeship. Well-financed emissaries were sent to Europe on book-hunting missions to collect books "for the instruction of the professors." The Medical Department of Transylvania University became one of the most celebrated medical schools of this country, and its library of books, magazines, paintings, drawings, theses, apparatus, wax models, etc., depicting "period medicine" has no peer. Writers of medical history spend months among its rare volumes.

Louisiana

Supports National Dog Week.—The Louisiana Kennel Club, affiliate unit of the American Kennel Club, was the first to join in the movement to establish a permanent fund to support National Dog Week. A permanent NDW committee was named and an annual contribution subscribed. The motive is to increase the popularity of dogs on a national scale.

Maryland

Program of Meeting.—The Maryland State Veterinary Medical Association met at Ocean City on June 20 and 21 to hear the address of President J. Walter Hastings, Sr., of Cambridge, and to listen to the following speakers:

Dr. A. L. Brueckner, Director, Livestock Sanitary Service, College Park: "Rabies Situation in Maryland."

Mr. Guy Harmon, Superintendent Blakeford Farm, Centerville: "Feeding and Care of a Dairy Herd."

Dr. L. J. Poelma, University of Maryland, College Park: "Anaplasmosis." Discussion by Drs. M. H. Jacobs, Chestertown, and H. F. Wharton, Centerville.

Dr. John Gadd, Towson: "Large Animal Surgery."

Dr. Otto Stader, Ardmore, Pa.: "Fractures."

Dr. A. L. Brueckner served as chairman of a "Brucellosis Panel" in which questions were answered by Dr. A. Parker Hitchens, Commissioner of Health, Wilmington, Del., Dr. C. A. Perry, Bacteriologist, State Health Department, Baltimore, Dr. F. H. Wharton, and Dr. L. J. Poelma.

Dean R. A. Kelser, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, was guest speaker at the banquet, while Dr. Hulbert Young, of Baltimore, acted as toastmaster.

Michigan

Sixty-Fourth Annual Meeting.—The Michigan State Veterinary Medical Association met at Grand Rapids on June 25 and 26, 1946. The program presented was as follows:

Dean W. A. Hagan, New York State Veterinary College, Ithaca: "The Veterinary Aspects of Military Government for Germany."

Mr. Chas. Figy, Director, Michigan Department of Agriculture, Lansing: "The Bonine Law."

Dr. Glen Reed, Constantine: "Importance of Various Phases of Veterinary Practice."

Dr. W. H. Haskell, U. S. Public Health Service, Chicago, Ill.: "The Veterinarian in Public Health Work."

Dr. A. H. Quin, Jensen-Salsbery Laboratories, Kansas City, Mo.: "The Business Side of Practice," and "Field Use of DDT."

Dr. R. F. Smith, Boswell, Ind.: "Swine Diseases," and "A Day in Poultry Practice."

Dr. R. T. Ingle, Farmington: "Laboratory Procedures for the Practitioner."

Dr. Otto Stader, Ardmore, Pa.: "The Present Status of the Distemper Problem," and "Problem Fractures."

"What Needs Fixing" was the title of a symposium of constructive criticisms of the veterinary profession by service veterinarians who have returned—and with a new perspective. Former Veterinary Corps officers participating were Drs. Louis Dawe, Capac; N. S. Howe, St. Johns; L. F. Jennings, Eaton Rapids; Christian Jensen, Petoskey; J. S. Nash, Coldwater; and N. H. Stoner, Kalamazoo.

Dr. W. A. Hagan, as the banquet speaker, chose as his subject "The Trend in Veterinary Education."

Officers elected were: Dr. E. C. W. Schubel, Blissfield, *president;* Dr. M. J. Geiger, Croswell, *vice president;* Dr. B. J. Killham, *secretary-treasurer;* Dr. Frank Thorp, Jr., AVMA *resident secretary;* Dr. C. F. Clark, delegate to AVMA House of Representatives.

Missouri

Course in Animal Medicine.—The St. Louis College of Pharmacy will aid pharmacists by means of an "Animal Help Pharmacy Course." Such a course was offered to druggists July 15 to 19. Dr. C. L. Campbell, D.V.M., of the Lederle Laboratories, is activating the course and will contact other manufacturers in the field to provide a "visiting faculty," says *Drug Topics.* It's just one damn thing after another.

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State Association Commends Research Fund Campaign.—The following resolution was adopted by the Missouri Veterinary Medical Association at its meeting in Springfield, June 10-11, 1946:

Resolution

Whereas, your committee has considered the research project of the American Veterinary Medical Association and

Whereas, your committee feels that the mem-

bers of this association, by their action at the present meeting, have expressed their approval of the program of the AVMA Research Council, therefore be it

Resolved, that the secretary of the Missouri Veterinary Medical Association be instructed to notify the Special Committee on Financing Research that this association fully approves the project and accepts its quota as outlined by the national committee.

RESOLUTIONS COMMITTEE
s/CHAS. D. FOLSE GEO. W. LEBER
E. V. MILLER

This resolution reflects the enthusiasm of Missouri veterinarians for the current drive for the AVMA Research Fund.

s/J. L. WELLS, *Secretary.*

Montana

Thirty-Sixth Annual Meeting.—The Montana Veterinary Medical Association met at Helena, July 8-10, 1946. The opening address was read by Mr. C. K. Warren, president of Montana Livestock Sanitary Board, Deer Lodge, and the response by Mr. B. K. Kilborn, secretary of the State Board of Health, Helena. Minutes were read and reports of officers and committees received. The following program was presented:

Dr. B. T. Simms, president-elect of the AVMA and chief, U. S. Bureau of Animal Industry, Washington, D. C.: "The American Veterinary Medical Association," and "Diseases of Dairy Calves."

Dr. E. J. Frick, Kansas State College, Manhattan: "Small Animal Practice," and "Differential Diagnosis and Treatment of Colics of Horses."

Dr. H. E. Kingman, Wyoming Hereford Ranch, Cheyenne: "Placenta of the Cow," and "Semen as an Index of the Physiology and Pathology of the Male Genital System."

Dr. C. F. Haynes, Montana Livestock Sanitary Board, Helena, acted as chairman for a discussion of "Infectious Hemoglobinuria."

Dr. Lee Seghetti, Veterinary Research Laboratory, Bozeman, was chairman of a discussion on "Poultry Diseases."

Dr. W. J. Butler, Helena: "Report of the State Veterinarian."

Dr. G. W. Cronen, Helena: "Report of Inspector in Charge, U. S. B. A. I."

Dr. Hadleigh Marsh, Bozeman: "Report of Veterinary Research Laboratory."

Nebraska

Central Association.—The Central Nebraska Veterinary Medical Association met at Lexington, June 25, 1946. About 50 members held a round table discussion of current veterinary problems, and also enjoyed a fresh fish fry.

Officers elected for the coming year are: Dr. S. B. Stafford, North Platte, *president;* Dr. E. Von Tour, Alliance, *vice president;* and Dr. L. J. Boulier, Cozad, *secretary-treasurer*, reëlected.

s/PAUL L. MATTHEWS.

New York

Barbiturates Under Stringent Control.—On May 1, 1946, sales of barbiturates in this state came under stringent control when Governor Dewey signed the Blank-Griffith Barbiturate Bill. The effects of the law on the purchase of barbiturates for veterinary use is not clear in the published reports. The law expressly prohibits "sales by manufacturers, jobbers, or wholesalers to persons other than those duly registered with the State Board of Pharmacy."

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National Dog Week.—America's Girl Scouts are actively supporting this year's National Dog Week, September 22-28. To contributors of $1.00 or more, a four color print of the editorial, "A Dog's Eye View," which won the 1945 contest, will be mailed free.

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Farm-In-The-Zoo.—Dr. L. J. Goss, veterinarian at Bronx Zoo, tells many interesting things about the farm operated for New York City folks, in "The Farm-in-the-Zoo Appeals to City Folks," which appears in the May-June issue of *DeLaval Monthly.*

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New Booklet Offered.—"New Products and Services" is the title of a 32-page tabloid published by the New York *Journal of Commerce.* It describes more than 500 new products in a number of fields, including a few veterinary items, and sells for 50 cents.

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Borden Buys Armstrong Food Company.—In line with a program of diversification, the Borden Company has acquired the Armstrong Food Company, manufacturers of pet foods.

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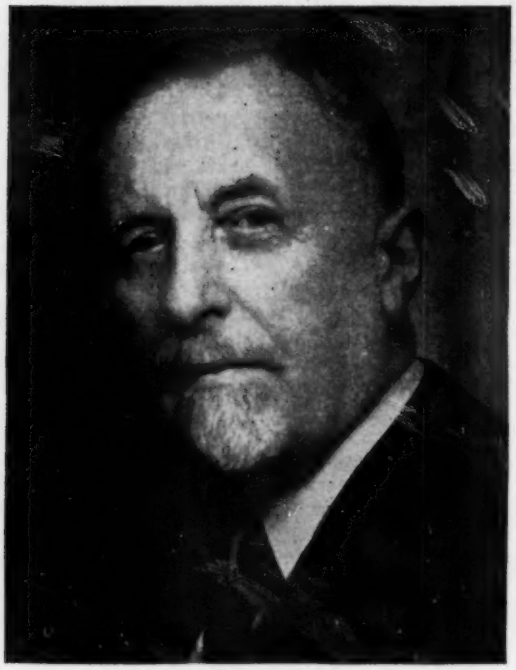
Medical Series On Radio.—"Encore Theater" is the name of a new half hour radio series designed to develop understanding and appreciation of the contribution made by the medical profession to human health and welfare. It is sponsored by Schenley Laboratories, and will be broadcast over stations of the Columbia Broadcasting System on Tuesday at 9:30 p. m., eastern daylight saving time.

North Carolina

K-9 Tobacco Wormer.—A fine bird dog named Jack, belonging to a Wake County tobacco farmer—Cecil K. Beck—has been named Jack-the-worm-killer because he worms tobacco like a man, only better, says a release to the weekly papers. Of this remarkable gun dog, Jack Ray, pathologist of the Corn States Serum Company and native North Carolinian, writes: "This dog wasn't named for me, but would like to have had a pack of them, when I was on a tobacco farm 'way back when."

North Dakota

Dr. L. Van Es Honored.—At a special convocation of North Dakota College on July 16, 1946, the honorary degree of Doctor of Agriculture was conferred upon Dr. Leunis Van Es, of Lincoln, Neb., former professor of veterinary science at the college and recently retired head of the Department of Animal Pathology and Hygiene at the University of Nebraska. The degree was given at exercises in Festival Hall on the campus by Acting President Charles A. Sevrinson before an audience consisting of faculty members and students and members and guests of the North Dakota Veterinary Medical Association which was in session in Fargo on July 15-16, 1946.



Dr. L. Van Es

Dr. Van Es was presented by Dean of Agriculture H. L. Walster, who read the citation which follows:

"Leunis Van Es, son of the Netherlands, naturalized citizen of the United States of America, physician, veterinarian, bacteriologist, servant to man and to beast, scientist with a cosmopolitan outlook, for the record shows your birth and early education in Holland, a Veterinary Surgeon degree from Toronto in Canada, an M.D. degree from the University of Alabama in the Southland, a Doctor of Science award from the University of Pennsylvania, Professor of Veterinary Science and Experiment Station Veterinarian at the North Dakota Agricultural College from 1902-1918, and head of the Department of Animal Pathology and Hygiene at the University of Nebraska from 1918 to July 1, 1946. Ever zealous in the cause of sanitation and the control of livestock diseases, you helped guide the livestock destiny of two great states of the Plains—North Dakota and Nebraska. This audience of your professional colleagues is familiar with the long list of your contributions to the prevention and cure of livestock disease.

"Mr. President, on behalf of the faculty of the North Dakota Agricultural College, I present to you Professor Leunis Van Es to receive the honorary degree of Doctor of Agriculture."

After the conferring of the degree, in which Acting President Sevrinson was assisted by Registrar A. H. Parrott and Dean Walster, the following were called upon and paid tributes to Dr. Van Es:

Dr. Van Es as a colleague at N.D.A.C.—Dr. A. F. Schalk, Professor of Preventive Veterinary Medicine, The Ohio State University.

Dr. Van Es as a professional veterinarian.—Dr. John W. Robinson, practicing veterinarian, Garrison, N. D.

Dr. Van Es as a servant of the State.—Dr. T. O. Brandenburg, Executive Officer and State Veterinarian, Livestock Sanitary Board, Bismarck, N. D.

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Midsummer Meeting.—The North Dakota Veterinary Medical Association met in Fargo on July 15-16, 1946. Over 50 veterinarians were in attendance and a total registration of more than 100 veterinarians and their wives and guests was recorded.

Following a business session on the morning of July 15 at the Gardner Hotel and an address of welcome by Mayor Dawson of Fargo, the following program was presented:

Dr. L. Meyer Jones, Iowa State College, Ames: "Chemotherapy in Veterinary Medicine."

Mr. A. E. Erickson, Fort Dodge Laboratories, Fargo: "Something to Think About."

Dr. J. G. Hardenbergh, AVMA, Chicago: "Veterinary Medicine in America Today."

Dr. L. Van Es, University of Nebraska, Lincoln: "Swine Erysipelas."

Dr. F. M. Bolin, North Dakota Agricultural College, Fargo: "Malignant Catarrhal Fever."

Dr. A. F. Schalk, The Ohio State University, Columbus: "Gastric Fistula Technique and the Physiology of the Bovine Stomach." (Motion picture demonstration.)

At the dinner, which was attended by some 90 veterinarians and their wives, Dr. J. W. Robinson, Garrison, N. D., served as toastmaster and presented a number of guests. AVMA Executive Secretary Hardenbergh spoke on "Public Relations for the Veterinary Profession."

On July 16, the meeting convened in the Veterinary Building at North Dakota Agricul-

tural College, where the scientific program was continued as follows:

Dr. L. Meyer Jones, *ibid*: "Veterinary Education."

Dr. A. F. Schalk, *ibid*: "Mastitis Prevention and Therapy."

Dr. D. F. Eveleth, North Dakota Agricultural College, Fargo: "Turkey Diseases in North Dakota."

In the afternoon, a number of clinical demonstrations were presented in which Drs. Van Es, Schalk, Bolin, Eveleth, J. Karcher, Donald Christian, E. C. Myers, and others participated. The subjects included differential diagnostic methods, packinghouse condemnations, sheep parasites, and Gibberella poisoning. The latter condition is caused by a mold and has been recognized to date only in North Dakota.

Ohio

New Equine Abattoir.—Quaker Oats Company has purchased the plant of the defunct Marion Packing Company, including 25 acres of ground, with the announced object of engaging in the sale of horse meat for canine and human use. The plant, which was scheduled to open May 1, has a capacity for slaughtering 500 horses a week. The object of locating the Ken-L-Ration plant at Marion is said to be its proximity to the eastern dog-food market.

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Honor Abbott Scientist.—Miami University granted a D.Sc. degree to Dr. Ernest H. Volwiler, of the Abbott Laboratories, Chicago, for distinguished service in scientific research. Dr. Volwiler has been an Abbott director since 1930, vice-president since 1933, and executive vice-president in charge of research since March, 1946.

Ontario

The A.A.E.E.—The American Association of Economic Entomologists, whose importance has grown by leaps and bounds in recent years, was founded in 1889 by entomologists of Canada and the United States at the annual meeting of the A.A.A.S. in Toronto.

Oregon

Dr. W. M. Swangard to Germany.—Last year Dr. W. M. Swangard sat in the House of Representatives of the AVMA as delegate from Oregon. Shortly after that meeting, he went to Mexico on invitation from the Universitad Nacional, and served with the veterinary faculty. Upon his return from Mexico, recently, he was appointed as consultant to the Technical Industrial Intelligence Branch of the Department of Commerce. During the war, this was known as the Combined Intelligence Objectives Subcommittee and operated under the allied armies. It has now been transferred to the American Theater Commander, under joint management with the Department of Commerce. Dr. Swangard's mission will include an investigation and evaluation of German achievements in the fields of veterinary medicine, pharmaceutics, and hormone production. He left Washington on May 27 and expects to be gone the remainder of the summer.

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Personal.—Dr. A. W. Simmons, of Silverton, is retiring from practice to devote his time to cow testing. His practice was taken over by Dr. E. H. Henkle (WASH '37) recently released from military service.—*Western Dairy J., April, 1946.*

Puerto Rico

Public Health Program.—An ambitious public health program sponsored by Governor Rexford G. Tugwell took form by the passage of enabling legislature. One bill appropriated $518,000 for the construction of municipal hospitals, one appropriated $221,000 for establishing rural health centers, and another amounted to $2,100,000 for constructing hospitals and medical centers, in addition to federal aid for that purpose.

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Fourth Annual Meeting.—The Sociedad Insular De Medicos Veterinarios held its fourth annual meeting at Santurce, on June 1 and 2, 1946. Speakers who took part in the program, after the address of welcome by President Alfonso Rivera, were: Dr. Carlos L. Muniz, of the Department of Sanitation; Dr. Arturo Gonzalez Mena, M.D., of Hato Rey; Dr. O. A. López-Pacheco, of Hato Rey; and Dr. Jaime Bagué, of the Department of Agriculture and Commerce.

Rhode Island

Officers Elected.—The annual meeting was postponed this year to await the arrival of members from the Veterinary Corps. Officers elected are: Dr. Harry L. Phillips, Riverside, *president;* Dr. John H. Barrett, Westerly, *president-elect;* Dr. J. S. Barber, Pawtucket, *secretary-treasurer.*

s/J. S. BARBER, *Secretary.*

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Licensing Examination Ruling.—"That part of a state law which restricts candidacy for veterinary licenses in Rhode Island to graduates of schools recognized by the American Veterinary Medical Association was declared 'unconstitutional and void,' and a delegation of power unwarranted under the State Constitution by Judge Alexander L. Churchill in Superior Court yesterday" says *The Providence Journal,* June 27, 1946. The item says, "Holding that Cyril James Allen of Middletown, a graduate of Middlesex University School of Veterinary Medicine in Massachusetts 'is entitled to take and the board is legally obliged

to give him' an examination as prescribed by the state act, Judge Churchill granted his petition for a writ of mandamus compelling the board to do so.

"In his written decision in the case, Judge Churchill said it would seem on principle that the General Assembly is without power to vest in a body outside the state and not subject to its jurisdiction the authority to make or create standards of conduct binding on the citizens of Rhode Island, and legal authorities so hold. He said he was making the ruling both on principle and authority."

An appeal from the decision will be taken, and the course of such appeal will be determined by the Attorney General's Department.

Saskatchewan

BCG Vaccination.—The vaccination against tuberculosis with the Bacillus-Calmette-Guerin method is practiced on a large proportion of nurses and employees working in the tuberculosis sanitoriums of the province. Since 1938, when the vaccination was instituted among this group, the incidence of the disease was reduced 25 per cent among nurses and 20 per cent among the employees, according to a report of the Anti-Tuberculosis Association.

Utah

Range Cattle and the Nation's Security.—When the State Agricultural College at Logan received a gift of $10,000 from the Sears Foundation (Sears, Roebuck & Co.) to further its program on the improvement of range cattle through scientific research by which proved bulls and cows could be put out to ranchers on experimental contract, the importance of the range country to the food industries, as evaluated by "big business," was brought into the foreground in understandable fashion even to the man-in-the-street who has never been moved to study the sources of the nation's food. The improvement of range cattle is not new, but attention to it aroused little general interest until food shortage became a stern reality.

Washington

Northwest Association Meets.—The twenty-seventh annual meeting of the Northwest Veterinary Medical Association was held at Seattle, July 16-18, 1946. Members of the British Columbia, Oregon, and Washington associations combine their efforts and activities for this one meeting annually.

The following speakers appeared on the program:

Dr. E. A. Ehmer, Seattle: "Fracture Treatment, Especially Pinning."

Dr. B. T. Simms, president-elect of the AVMA and Chief of the Bureau of Animal Industry, Washington, D. C.: "Some Diseases of Calves."

Dr. John W. Osebold, Corvallis, Ore.: "Urea and Nitrate Poisoning in Cattle."

Dr. J. V. Lacroix, Evanston, Ill.: "Canine Surgery," "Progress in Canine Medicine," and "Tonsillitis and Occasional Tonsillectomy."

Dr. S. N. Woods, University of British Columbia, Vancouver: "A Canadian Veterinary Association."

Dr. C. R. Schroeder, Lederle Laboratories, Pearl River, N. Y.: "Sulfonamides."

Dr. Arthur L. Ringle, M. D., Director, Washington State Department of Health: "Public Health and the Veterinarian."

Dr. McConville, M. D., Seattle: "Trauma and Treatment of Infected Wounds."

Dr. J. E. McCoy, State College, Pullman: "Blood and Tissue Bank in Veterinary Practice."

Dr. Rod C. McCornack, Assistant State Veterinarian, Salem, Ore.: "What the U. S. Army Did for the Veterinary Profession."

Dr. O. J. Hummon, State College, Pullman: "Diagnosis and Control of Fur Animal Diseases."

Dr. Stanley E. Phillips, Medford, Ore.: "Small Animal Surgery."

Dean E. E. Wegner, State College of Washington, was toastmaster at the banquet. Dr. B. T. Simms was the speaker, using as his topic "The Veterinarian's Job."

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Personal.—Dr. E. M. Gildow (WASH'22), in charge of animal disease and research at Carnation Farm, presented a lecture on "Genetics" to the Associated M & M Fur Farmers during their annual meeting and pelt show. He attributed success in fox and mink farming to good breeding, feeding, health, sanitation, housing, management, and marketing. A transcript of his talk was published in *Fur Journal*, January, 1946.

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Personal.—Dr. O. J. Hummon, of the State College of Washington, Pullman, was responsible for making health examinations of all entries in the Pacific Northwest Fur Exposition, Dec. 4 and 5, 1945. No entry was accepted for exhibition until it had been duly examined and passed.

Wisconsin

Personal.—Dr. and Mrs. Herbert Lothe of Waukesha flew to Europe in June on the Clipper to look after the real estate and livestock of the Rasmussen Farms, or as the reporter says, to see what the Nazis left. The Rasmussens are chain store magnates and large scale breeders of Holstein-Friesians.

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Licenses Granted.—Twenty-eight licenses to practice veterinary medicine in Wisconsin were granted by the State Department of Agriculture as a result of examinations held June 19 and 20, 1946.

Fatal Auto Accident.—Dr. John J. Porter, of the University of Wisconsin, Madison, was killed in an automobile accident while returning to his home after addressing a meeting of the Wisconsin Veterinary Medical Association at Wisconsin Dells. A manuscript written by Dr. Porter was published in the July JOURNAL.

The car was driven by Dr. A. C. Kelman, also of the university, and a third passenger was Dr. D. T. Berman, who recently left the staff. Drs. Kelman and Berman were not seriously injured, nor was the driver of the car which caused the accident. A jury found the accident was caused by the driver of the other car, who was driving while intoxicated.

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Newcastle Disease.—An outbreak of Newcastle disease has been reported in a poultry flock near Baldwin. It occurred in a flock of birds shipped in from another state, and this flock is being closely quarantined.

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Personal.—Dr. A. E. Moats (OSU'35), who was recently discharged from the Veterinary Corps with the rank of major, has entered practice at Viroqua, in association with Dr. G. W. Minshall.

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Personal.—Dr. G. R. Spencer (KSC'40) has located at Cambridge and will engage in general practice. Dr. Spencer had spent three years in graduate study at the University of Wisconsin before entering military service. He was engaged in naval medical research, and achieved the grade of lieutenant (j.g.).

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Personal.—Dr. C. T. Orton (ISC'42) has located at Beaver Dam where he will conduct a general practice. Before entering the Veterinary Corps, where he spent more than three years as a food inspector, Dr. Orton had practiced at Campbellsport.

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Southeastern Association.—The Southeastern Wisconsin Veterinary Association met at Germantown on June 27, to hear a former member of the F. B. I. relate some of his experiences before leaving this work to become the mayor of West Bend.

Wyoming

AVMA Work Recorded in High Places.—Since the Congressional Record contains the most lasting documentation of noteworthy events passing across the screen, the "Recommendations for the Prevention of Bloat in Cattle and Sheep," by the Committee on Animal Health of the National Research Council, became a part of American history on May 16. Senator Joseph C. O'Mahoney (Dem., Wyo.) in his "Extension of Remarks" had the full text of the article on that subject, as published in the JOURNAL of the American Veterinary Medical Association (November, 1943) entered in the record, along with the names of the committeemen: Cole, Amadon, Dougherty, Espe, Huffman, Olson, and Schalk. [This personnel comprises the subcommittee of the Committee on Animal Health of the National Research Council. Their report was widely published by the agricultural press of the Middlewest and West.—Editors.]

In sending a copy of this page of the Congressional Record, Dr. R. F. Griggs, *chairman*, Division of Biology and Agriculture of the National Research Council, remarks: "Such is fame!"

FOREIGN

England

Van Horse Parade.—Says the *Veterinary Record:* "The public accorded a warm welcome to the return of the famous van horse parade at Regent's Park on Easter Monday when, after a lapse of seven years, the vanner was seen again in all its impressiveness by thousands of Londoners who crowded the inner circle to watch the judging.

"There were 200 entries, compared with 554 in 1939, but that does not signify that there are fewer light draft horses employed in the London area. It is believed that London has more horses than before the war."

Holland

Centennial Year Passes.—The Dutch Veterinary Association passed its one hundredth milestone in 1942, having been organized on Dec. 20, 1842, by a group of veterinarians who arrived for the meeting on skates.

Because of the war then in progress, no celebration was held nor recognition given to the event. It is now planned to purchase a building in a central city to serve as the permanent home of the Association. This building will also house a veterinary museum.

s/CHAS. HAASJES.

COMING MEETINGS

West Virginia Veterinary Medical Association. Gore Hotel, Clarksburg, W. Va., Aug. 5-6, 1946. R. M. Johnson, 710 Red Oak St., Charleston, W. Va., secretary-treasurer.

American Veterinary Medical Association. Eighty-third Annual Meeting. Hotel Statler, Boston, Mass., Aug. 19-22, 1946. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

American Animal Hospital Association. Semi-Annual Business Meeting. Hotel Statler, Boston, Mass., Tuesday, Aug. 20, 1946, (luncheon session). R. E. Ruggles, 901 19th St., Moline, Ill., secretary.

Southern Veterinary Medical Association and Kentucky Veterinary Medical Association. Brown Hotel, Louisville, Ky., Sept. 30, and Oct. 1-2, 1946. F. M. Kearns, 3622 Frankford Ave., Louisville 7, Ky., secretary-treasurer.

Purdue University. Short Course for Veterinarians. Purdue University, Lafayette, Ind., Oct. 2-4, 1946. C. R. Donham, Dept. of Veterinary Science, Purdue University, head.

Pennsylvania State Veterinary Medical Association. Penn Harris Hotel, Harrisburg, Pa., Oct. 9-11, 1946. R. C. Snyder, N. W. Cor. Walnut St. and Copley Rd., Upper Darby, Pa., secretary.

Eastern Iowa Veterinary Association, Inc. Hotel Montrose, Cedar Rapids, Iowa, Oct. 15-16, 1946. C. C. Graham, Wellsburg, Iowa, secretary.

Florida State Veterinary Medical Association. Soreno Hotel, Petersburg, Fla., Oct. 28-29, 1946. V. L. Bruns, Box 623, Williston, Fla., secretary.

University of Missouri. Short Course for Veterinarians. University of Missouri, Columbia, Nov. 4-6, 1946. A. J. Durant, Dept. of Veterinary Science, University of Missouri, chairman.

American Public Health Association. Cleveland, Ohio, the week of Nov. 11, 1946.

American Society of Animal Production. Hotel Sherman, Chicago, Ill., Nov. 29-30, 1946. W. G. Kammlade, 110 Stock Pavilion, Urbana, Ill., secretary.

United States Live Stock Sanitary Association. Hotel La Salle, Chicago, Ill., Dec. 4-6, 1946. R. A. Hendershott, 33 Oak Lane Ave., Trenton 8, N. J., secretary-treasurer.

Minnesota State Veterinary Medical Society. Jan. 6-8, 1947. H. C. H. Kernkamp, University Farm, St. Paul 8, Minn., secretary-treasurer.

North Carolina State College. Conference for Veterinarians. North Carolina State College, Raleigh, N. Car., Jan. 28-31, 1947. C. D. Grinnells, State College Station, Raleigh, N. Car., program chairman.

Institute of American Poultry Industries. Fact Finding Conference. Municipal Auditorium, Kansas City, Mo., Feb. 2-4, 1947. Cliff D. Carpenter, Institute of American Poultry Industries, 110 N. Franklin St., Chicago 6, Ill., president.

Chicago Veterinary Medical Association. Palmer House, Chicago, Ill., the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.

Massachusetts Veterinary Association. University Club, Boston, Mass., the fourth Wednesday of each month. H. W. Jakeman, 176 Federal St., Boston 10, Mass., secretary-treasurer.

New York City Association. Hotel Pennsylvania, New York, N. Y., the first Wednesday of each month. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.

Saint Louis District Meetings. Roosevelt Hotel, St. Louis, Mo., the first Friday of each month. C. W. Darby, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Houston Veterinary Medical Association. Houston, Texas, the first Thursday of each month. Edward Lepon, Houston, Texas, secretary-treasurer.

STATE BOARD EXAMINATIONS

West Virginia—The West Virginia Veterinary Board will hold its next examination Aug. 5, 1946, 9:00 a.m., at the Hotel Gore, Clarksburg, W. Va. Applications must be filed with the secretary at least ten days before date of examination. Applications accepted from graduates of recognized and approved schools only. Address inquiries to W. E. Trussell, secretary, Charles Town, Jefferson County, W. Va.

BIRTHS

To Dr. (MSC '45) and Mrs. Richard R. Eckman, Coral, Mich., a daughter, Susan Ruth, April 21, 1946.

To Dr. (ISC '43) and Mrs. Harlan M. Stanton, 6448 N. Clark, Chicago 26, Ill., a daughter, Sybil Ann, June 3, 1946.

To Dr. (TEX '44) and Mrs. Roscoe O. Sealy, Jr., 4609 Rainbow Blvd., Kansas City, Kan., a son, Jimmy Franklin, June 28, 1946.

To Capt. (KSC '43) and Mrs. T. C. Campbell, Laurel, Neb., a son, Thomas Michael, July 3, 1946.

DEATHS

★**F. G. Ahrendes** (KSC '42), 27, Tulsa, Okla., died April 4, 1946. Dr. Ahrendes had been engaged in general practice in Tulsa since his graduation. He is survived by his parents, of Miltonvale, Kan., and a brother. He was admitted to the AVMA in 1942.

A. A. Anderson (KCVC '09), Lincoln, Neb., died Jan. 2, 1946.

J. C. Cowser (KCVC '08), 62, Farmington, Ill., died March 21, 1946. Dr. Cowser practiced for a time after his graduation and later engaged in the undertaking and furniture business.

★**E. B. Cox** (OSU '45). The JOURNAL (July) reported, in error, the death of Dr. Cox as on May 4. The correct date of his death was April 4, 1946.

★Indicates member of the AVMA.

R. F. Erwin (ONT '01), Alma, Mich., died in May, 1946.

S. G. Dreppard (TH '12), Little Rock, Ark., died May 28, 1946. Dr. Dreppard had served with the BAI for many years and, at the time of his death, was in charge of the Federal-State Brucellosis Laboratory for Arkansas. He is survived by his widow and two daughters.

★**L. M. Friedline** (IND '17), 51, Jonesboro, Ind., died May 25, 1946. He was born at Jonesboro on Feb. 5, 1895. Dr. Friedline was admitted to the AVMA in 1941.

★**A. T. Gilyard** (CORN '07), 59, Waterbury, Conn., died June 16, 1946. He was admitted to the AVMA in 1911. (*See* Connecticut news for obituary).

G. H. Gordon (MCK '11), Six Lakes, Mich., died in March, 1946.

T. P. Haslam (KSC '14), Council Grove, Kan., died of pneumonia April 15, 1946. Dr. Haslam was generally considered the leader of the research work that resulted in the development of blackleg aggressin at the Kansas State Experiment Station. The use of this immunization agent eventually reduced calf losses from blackleg in the Southwest from 10 per cent to less than one-half of 1 per cent. Dr. Haslam received his Doctor of Medicine degree in 1924 from the University of Nebraska, and thus realized his boyhood dream of practicing medicine in his own home town. He is survived by his widow, a daughter, and a son.

T. S. Hickman (KCVC '08), 84, San Diego, Calif., died March 12, 1946. Dr. Hickman had served in World War I and had practiced in California since that time.

T. B. Hinkle (OSU '12), Ashley, Ohio, died March 20, 1946.

★**E. V. Hover** (OSU '10), 58, Lima, Ohio, died May 28, 1946. He was born at Westminster, Ohio, in November, 1887. Dr. Hover had been a member of the AVMA since 1917.

F. J. Lauman (KCVC '07), 69, St. Louis, Mo., died Feb. 23, 1946.

★**J. A. McGarry** (CVC '96), 72, Santa Cruz, Calif., died June 8, 1946. Dr. McGarry was admitted to the AVMA in 1929.

★**G. E. McCormick** (ONT '43), 25, Ormstown, Que., Can., was killed suddenly in an auto accident while making a call during the night. He was born Dec. 4, 1920, at Athelstan, Que. Dr. McCormick had been engaged in general practice, and had been a member of the AVMA since 1943.

R. C. Musser (OSU '04), 69, Los Angeles, Calif., died March 31, 1946. Dr. Musser accepted an appointment in the BAI upon graduation and, in 1906, received an appointment as veterinarian in the 14th U. S. Cavalry, transferring to the 12th Cavalry in 1913. He attained the rank of Colonel in 1932, and was retired from the Veterinary Corps in 1934, due to physical disability.

U. S. Nutty (ISC '17), Nevada, Iowa, died March 22, 1946.

★**J. J. Porter** (KSC '43), 29, Madison, Wis., died in an automobile accident July 18, 1946. He was admitted to the AVMA in 1943.

M. Russell (WEST '08), Marshalltown, Iowa, died Jan. 26, 1946.

L. F. Thompson, Grant City, Mo., died April April 29, 1946, after a heart attack following a professional call.

H. A. Tobin (MCK '09), Three Rivers, Mich., died in April, 1946.

A. Travis, of Litchfield, Ill., died in April, 1946.

★**A. R. Ward** (CORN '01), Detroit, Mich., died early in 1946. Dr. Ward had been a member of the AVMA since 1903.

★**W. W. Warnock** (ONT '04), 62, Aledo, Ill., died May 31, 1946. He was born at Keswick, Iowa, Aug. 6, 1883. He had been secretary of the Illinois Board of Veterinary Examiners and assistant state veterinarian. Dr. Warnock joined the AVMA in 1939.

THE VETERINARY PROFESSION AND THE WAR

Veterinary Corps Appointments

The following is a list of those veterinarians whose applications for permanent commissions in the Veterinary Corps, U. S. Army, were recently recommended by President Truman:

MAJORS

Carter, Philip R.
Holmberg, Gerald W
Kerr, George M.
Marsh, Edward T.
Maurer, Fred D.
Resseguie, Roy A.
Starnes, Mervyn B.
Wilson, Neil O.

CAPTAINS

Allison, Aaron F.
Anslow, Ralph O.
Beadner, Harold F.
Bloomquist, E. W.
Burns, Kenneth F.
Chadwick, Ralph D.
Christopher, B. C.
Clark, Marley C.
Coburn, George C.
Collins, H. R., Jr.
Cook, Robert W.
Crawford, James P.
Day, Robert W.
Dieterich, W. H.
Dungan, W. M., Jr.
Failing, Frank W.
Fechner, Walter W.
Fisher, Sam S.
Fox, Murl W.
Frank, Charles B.
Fry, Lloyd V.
Gale, John
Gleiser, Chester A.
Gochenour, W. S. Jr.
Gollehon, Chas. W.
Gorman, Harry A.
Gorman, Lester J.
Grunwell, Joseph B.
Horn, Wiley H.
Hummer, Robert L.
Jessen, Lothard T.
Jimison, Robert L.
Kadets, Martin
Karr, James R.
Kastner, Manuel C.
Keller, Robert J.
Lancaster, Harry R.
Lasher, Norbert A.
Lichnovsky, J. F.
Lord, Willys E.
MacEachern, Neil G.
Manges, Joseph D.
McFadden, Glenn M.
Miller, Robert J.
Miller, Robert R.
Monroe, Floyd E.
Morgan, Richard B.
Murphy, Leslie C.
Nelson, Robert K.
Nettles, J. R. Jr.
Osborn, Lowell A.
Palen, Joseph S.
Prather, Elwin R.
Reid, Joseph E.
Robinson, Chas. E.
Ross, Martin A.
Rushmore, R. W.
Scott, Rolland O.
Sibert, Herbert F.
Snider, Charles H.
Snodgrass, W. B.
Stewart, Russel J.
Tate, Charles W.
Taylor, Albert A.
Twiehaus, Marvin J.
Vacura, Gordon W.
Van Sant, W. M.
Walbert, B. L. Jr.
Watkins, Ernest S.
Wilson, George M.
Winn, John D.
Zacherle, G. H. Jr.

FIRST LIEUTENANTS

Dixon, George F.
Hogge, Arthur L.
Kuhn, U. S. G. Jr.
Nims, Robert M.

Veterinary Officers Transferred

Lieutenant Colonel C. W. Betzold, V.C., has been transferred from the post he has held in Puerto Rico for several years to the Seattle General Depot, and has recently assumed the duties of his new office.

• • •

Colonel Wayne O. Kester, V.C., has been assigned to the position of Chief of Meat and Dairy Hygiene Branch of the Veterinary Consultants Division.

• • •

Lieutenant Colonel W. E. Jennings, V.C., has been designated Chief of Animal Branch, Veterinary Consultants Division.

Separation Criteria Lowered

Effective July 1, 1946, the criteria for Veterinary Corps officers was reduced from 39 to 36 months. It is expected that approximately 100 officers will be released as a result of this ruling.

Veterinarian in Coast Artillery

Dr. Kephart M. Curts (TEX '41) has served more than three and a half years as a line officer in the Coast Artillery, having been unable to obtain a transfer of his reserve commission to the Veterinary Corps. He has returned to his home in Missouri.

Report from India

Mr. W. R. Porterfield, writing in the *Chicago Tribune*, June 26, 1946, says: "Meat is slaughtered in Indian abattoirs that would give Boris Karloff the creeps. Buzzards, ravens, and scaly-necked vultures perch in trees and atop slaughter house roofs and swoop down to peck at the meat.

"American Veterinary Corps officers who inspected this source of the United States army meat tried in vain to point out to British authorities the health menace involved. One American Veterinary Corps captain who complained that much food issued to United States troops was unfit for human consumption was soon transferred after the British accused him of being a trouble maker."

Why let this opportunity slip through your fingers?

Recommend CUTTER B-T-V— The Safer Hog Cholera Control

You know it yourself—when someone introduces you to a better product—a *safer* product—your respect for his judgment increases.

That's why it's to *your* advantage to bring Cutter B-T-V to your clients. They'll thank you for the money B-T-V saves them in feed bills—for the way it prevents cholera without causing post-vaccination flare-ups.

The secret of B-T-V's success is that it contains no live virus! Hence, it can not cause stunting. Pigs don't go off feed—thus they gain faster—reach market sooner. And you can vaccinate with safety *any time*—all or *part* of a herd.

What's more, when you work with B-T-V, you're using the one cholera control that *rules out lay-vaccinating*. And at the same time it establishes *you* as a *progressive* veterinarian in your community—up-to-date on the best in disease controls.

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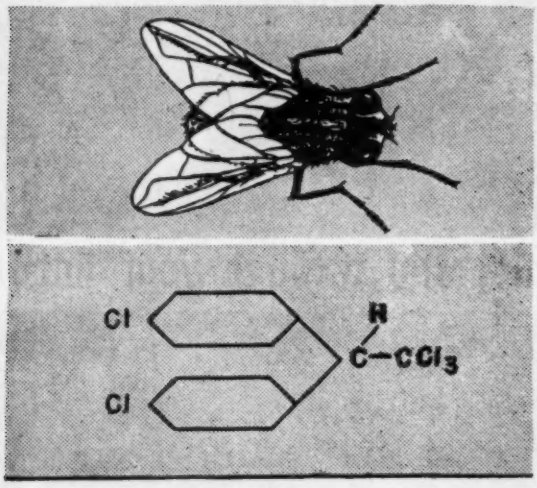
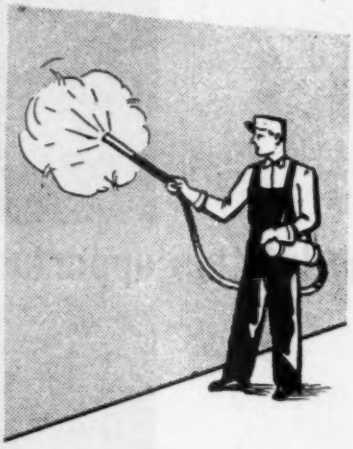
Science Takes the Offensive





—*Just Tookitt, Sir*

Oh, flies is flies and drugs is drugs and never the twain shall flirt. . . . But, it's "Saviour to 'is country" when the sprays begin to squirt.—Apology to R. K.'s "Tommy."

Painless Dehorning and Boastful Exploitation

Nerve blocking to annul the frightening pain of dehorning, developed by the School of Veterinary Medicine, University of Pennsylvania, several years ago, is acclaimed in releases of the Associated Serum Producers through the American Foundation of Animal Health, which sets apart this operation as an illustration of the difference between professional and non-professional service for farm animals—quite a contrast to the boastful exploitation of sick animals by another group of commercial firms whose objective is the overthrow of the country's veterinary service by breaking down the established order. The one group is devoted to animal welfare, the other to unleashing diseases to widen the outlet for its products.

Cattle numbers, in 1946, have decreased below those of 1945 by about 2 million head in North America and about 6 million head in Europe, while they have increased by about 3.7 million head in the Soviet Union during the same interval.

Doctor!!

speaking of

MASTITIS

Dr. Miller, writing in the U. S. Dept. of Agri. Year Book says—

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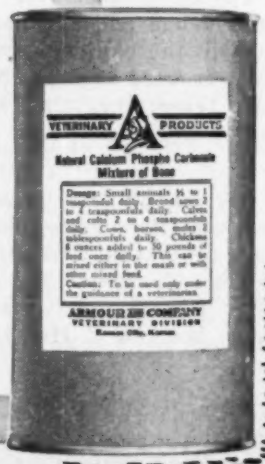
This is a natural product, definitely superior to synthetic mineral mixtures.



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Fifty Years Ago

The commotion over the coming of the sulfa drugs and antibiotic agents is but a flash in the pan compared with the excitement aroused by the Schmidt treatment for milk fever, the tuberculin test, and antitoxins fifty years ago.

• • •

It's exactly fifty years ago, come December, that Perroncito told the Italian veterinary profession that carbon disulfide was a reliable "boticide" and set down the directions for its use. Some thirty-five years later, Maurice C. Hall told *us* about it.

• • •

Erratum.—The date is Sept. 24, 1896, and the occasion was the opening of the New York State Veterinary College. We quote from the inaugural address by Dean James Law: "In Great Britain, there has never been a State Veterinary College. In America, as in England, veterinary schools have been private ventures, and consequently largely dominated by financial results." Correction: In 1896, ISC (Ames) had been granting veterinary diplomas for seventeen years, and OSU (Columbus) for eleven years.

• • •

The nutritional theory of periodic ophthalmia, which many farseeing veterinarians had stubbornly defended long before the Front Royal research proved the point, is not a newborn whim. Geo. G. Van Mater, M.D., D.V.S., famed author on veterinary ophthalmology of the nineteenth century wrote (*Am. Vet. Rev.*, June, 1896): "This affection is intimately related to climate, systems (of feeding), and soil; its cause may be attributed to the soil. Unwholesome feed and faulty methods of feeding undoubtedly predispose to the disease."

The use of glucose crept slowly into medical literature in the 1920's. In 1928 a Lord Haw Haw of the veterinary realm poked fun at (and we quote) "the idea of running to the grocery for corn sugar to cure a sick cow."

Cowpox can be controlled by milking the clean cows first, using mild antiseptics, and holding to a program of rigid cleanliness.—*Dr. G. W. Jensen.*

AMERICAN VETERINARY MEDICAL ASSOCIATION

* * *

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AUGUST 19-22

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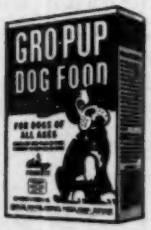
Don't forget to visit Kellogg's GRO-PUP booth in the main hall. Get acquainted with the first dog food to be awarded the Seal of Approval of the American Veterinary Medical and Animal Hospital Associations Committee on Foods.



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A complete discussion of Bacto-Tryptose Agar is found on pages 90-94 of the Difco Manual (7th Edition.)

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Physiatrist

Since the term "physical medicine" has replaced "physical therapy" in medical literature, a one-word term has been proposed for one who specializes in that branch of medicine. "Physiatrist," "physiatrician," and "physiocologist" have been proposed by the American Congress of Physical Medicine. Being etymologically exact, "physiatrist" is preferred by the *Journal of the American Medical Association.* It fits well into the series: *psychiatrist, physicist, orthopedist,* and *internist.* Moreover, *physiatrics* is already an accepted word.

The drug trade magazines which have no compunction about advocating quackery in veterinary medicine are quite upset over the tremendous increase of drug sales by unqualified retailers (chain stores, etc.), and all the comfort extended to the graduate pharmacist is (quoting *American Druggist*) that "it looks like the retail druggist will have to meet the competition." The graduate veterinarian, at least, has the satisfaction that his profession and its magazines stand steadfast behind him in the curbing of quackery.

Time may always be trusted to show up the inferiority of the blustering bully who crops up in every town and in every country. "Heute gehört uns Europe, morgen die Welt," was the poorest guess of the biggest bully of all time.

Says Vandercook of NBC: "If the American people ate all the food they will produce the next twelve months, their health would be impaired by over-eating."

Alfalfa meal should be fed at the rate of 10 to 12 per cent of the ration during gestation and lactation in order to get good litters. Wean them at a good weight, and leave the sow in condition for another litter.—*J. L. Krider, Ohio Annual Nutrition Conference, Nov. 1-2, 1945.*

Approximately 35 per cent of all cattle hides tanned in the United States in 1945 were graded no. 2 because of cattle grub damage.

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Extensive research and clinical trials have proven the value of Distemperoid for the treatment of early distemper. The action is brought about by "virus interference," also known as "cell block."

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2. The price of each ampul in boxes of 10 is now only $2.00; single ampul $2.25. Boxes of 5 have been discontinued.

With this "one visit" distemper prophylaxis or treatment with "Distemperoid" (the Biologic of choice), your distemper control will cost you less and satisfy your clients more.

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Federal Drug Administration Method

Laboratory Sample No. 7258

Identification: Antiseptigen.

Organism: (24 hours at 37° C., extract broth culture) Staphylococcus Aureus

Organic Matter: None.

Temperature of Medication: 37° C.

Dose: 0.5 c.c. of culture to 5 c.c. dilute disinfectant.

Subcultures: One 4 m.m. loopful to 10 c.c. broth.

The subcultures were incubated at 37° C. for 48 hours with the following results:

Sample	Dilution	Minutes Exposed to Disinfectant			Phenol Coefficient
		5	10	15	
No 7258	1- 50	—	—	—	
	- 60	+	—	—	
	70	+	—	—	
	80	+	—	—	
	90	+	+	—	
	-100	+	+	—	
	-110	+	+	—	
	-120	+	+	+	80/80 = 1.00 P. C.
Phenol	1- 80	+	—	—	
	- 90	+	+	+	

The above test indicates that this product has a staphylococcus aureus Phenol Coefficient of 1.00 as determined by the Food and Drug Administration Method at 37° C., or has a germicidal power toward staphylococcus aureus 1.00 times that of pure phenol

1 Gallon Bottle.....$ 4.75

5 Gallons 21.40

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The Commissioned Personnel of the Army

During the period of hostilities, there were 872,000 commissioned officers in the Army, of whom 531,000 (66.37%) were commissioned from the enlisted men of this war, 206,000 from the Officer's Reserve Corps, 21,000 from the National Guard, 72,000 doctors, dentists, veterinarians, pharmacists, and chaplains from civil life, and 67,000 female officers, all but 7,000 of whom came directly from nonmilitary circles. Civilian lawyers, scientists, and industrialists accounted for 24,000. There were also 9,000 officers of the Regular Army who came up from the ranks.

Included in this vast officer personnel are 9,000 graduates of the United States Military Academy (West Point), the small group of formally educated military scientists charged with the little matter of winning wars by training, directing, and harmonizing the citizen forces constituting the bulk of the nation's defenders. The Academy's official maxim—"Duty, Honor, Country"—is too full of character to be dimmed by hostile exhortation. The figures are taken from the *Bulletin of the U. S. Army Medical Department, April, 1946.*

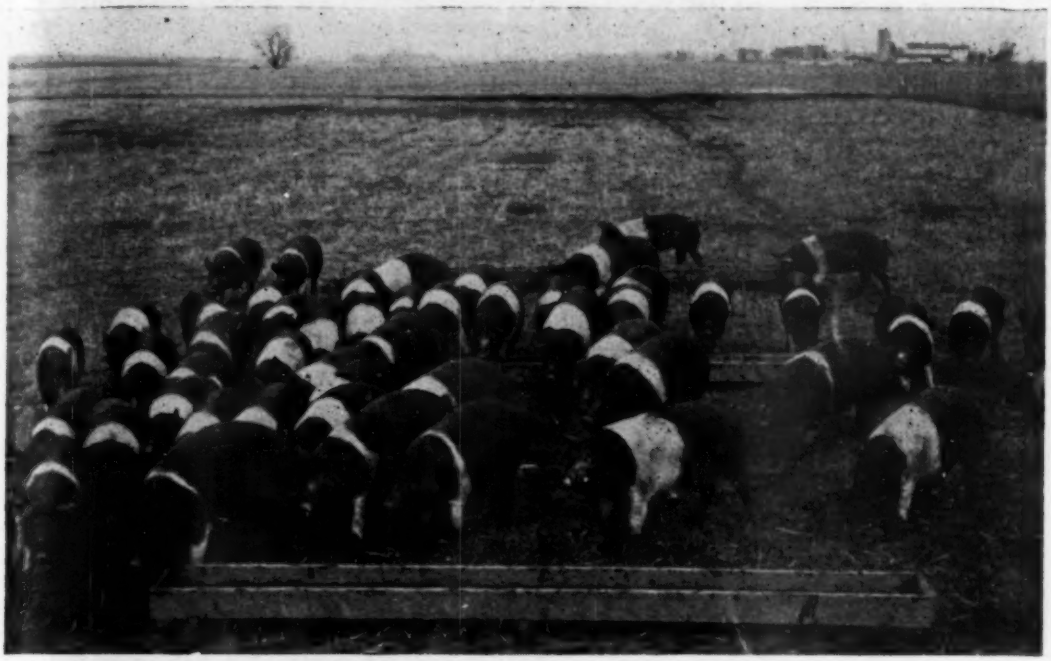
At the 12 principal livestock markets, receipts dropped to an alltime low on June 21, 1946, notwithstanding that the nation's livestock inventory was far above any ten-year average of record. Someone, somehow, somewhere . . . damphyno.

Says David Cushman Doyle in his book *America* (1941): "The world fell to pieces along with family and community life when one could travel forty miles while grandfather could travel only five with his horse and buggy."

Milk production per cow in the United States was 4,789 lb. in 1945, the highest figure in the twenty-one years for which records are available.

Cowpox may be treated successfully by washing affected areas with 1:1,000 bichloride of mercury solution and then rubbing well with zinc oxide ointment.—*Dr. A. N. Lawton.*

what, no corn? - - *then*



may we suggest . . .

— you tell your clients to run pigs on legume pasture and feed a *"Soaked Oats and Viaferm Mash." This will keep pigs going and growing without corn — help bring them up to 100 to 150 pounds and in condition to finish off in a hurry this fall.

***Rx** — for "Soaked Oats and Viaferm Mash". Grind the oats. In each bushel mix 2 lbs. VpC Viaferm Supplement. If Semi-Solid Buttermilk is available add 1/3 lb. to the Viaferm. Soak in 8 gals. of water. Lukewarm water is best. Stir to make thick mash. Allow to ferment for 12 to 24 hours, depending on weather. Feed twice daily all the pigs will clean up in 15 minutes.

Write for more facts on VpC Viaferm and this economical plan that feeds pigs without corn.

VpC Viaferm Supplement [with 10% Yeast Cultures]

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Via-D-Mineral Con-o-mineral

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"Mass displays of tampons, sanitary napkins, douche powders, syringes, and similar items of the feminine hygiene department close to the waiting counter and prescription department have increased sales 33.33 per cent at the Whiteway Pharmacy," says an article in a popular drug magazine bent on sales promotion at the corner drug stores. The owner insures increased sales to women from 18 to 35 years old, never mind the others. The principle is sound, along with selling gonad hormones to the farmers. What with more animals and fewer consumers, the UNRRA can close up and go on home.

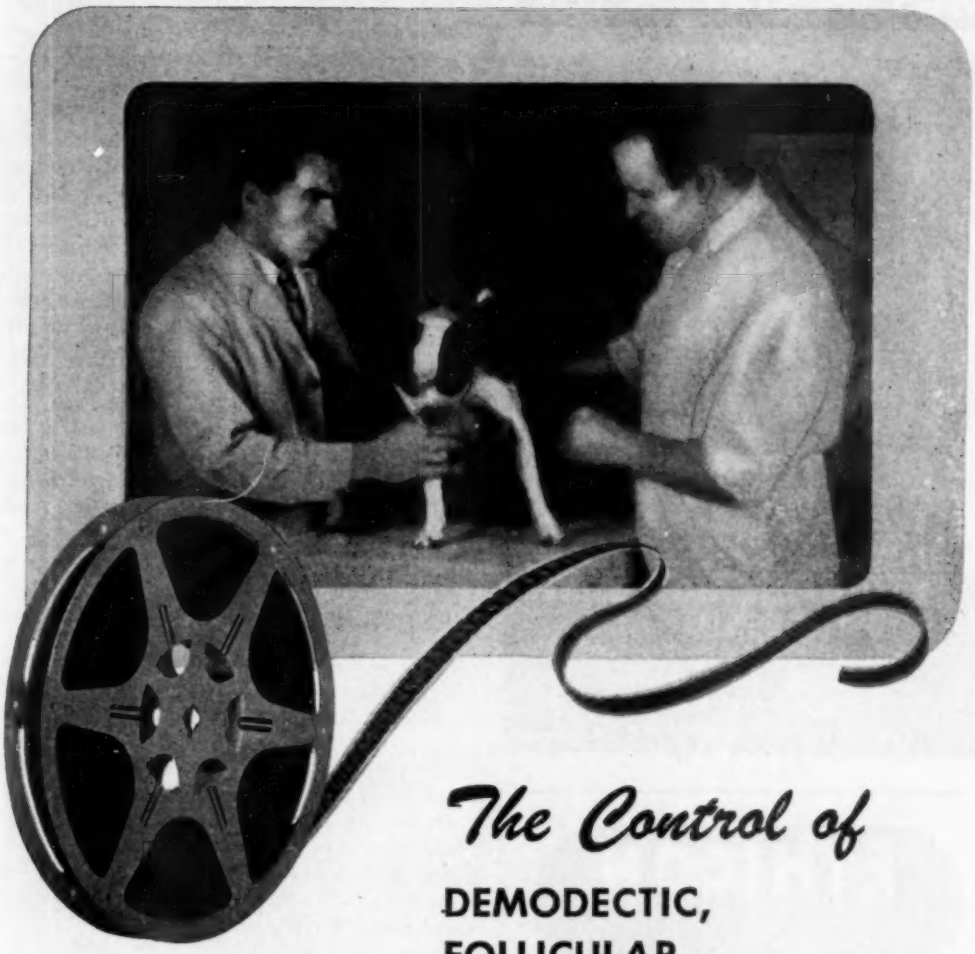
Paper Shortage and Quotas Not Alibis

"Next week *Science* will consist of only 32 pages. This reduction in size is forced on us simply because wo do not have the paper for the larger journal our readers have come to expect. Paper supplies, which were scarce enough during the war period, have become more and more scanty since controls on consumption were removed. . . . Some monthly scientific publications will not be able to print their June issue at the regular time and whether these issues will appear in July or in August, no one is able to say."—*Quoted from the May 17 issue of Science.*

Mutton, mutton, who's got the mutton? Our 86,500,000 hogs, 27,000,000 dairy cattle, and some 52,000,000 beefers of 1945, and the 1946 estimates (81,500,000 hogs, *e. g.*), do not seem to jibe with the take-home meat out our way.

On April 4, 1946, the Army abolished its historic cavalry as a separate arm of service and merged it with the armored forces. Horses will be retained only for special work in rough terrain and as pack animals.—*Chicago Trib.*, April 5, 1946.

There are two valid reasons why people don't mind their own business — they haven't any mind, or they haven't any business.



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Since applications for loan of the film will be filled as rapidly as prints are available, it is suggested that you enter your request as far in advance as possible.

The loan of this film is restricted to members of the Veterinary Profession.

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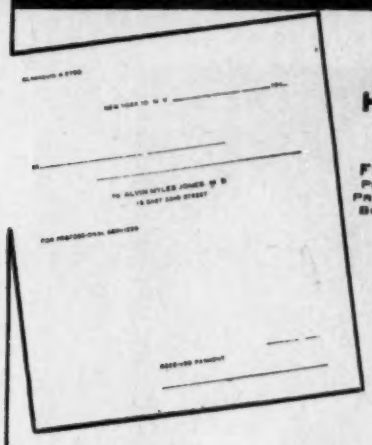
WHY WE STAY ON TOP



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Julius Caesar, Forsooth

Ever since this hired man can recall (some 60 years), medical and veterinary historians have had to debunk, from time to time, the Julius Caesar legend about the origin of "cesarean". Here is a 1946 effort to hold everything for the time being. It's a reprint of an editorial in the February (1946) issue of *Medical Times*, entitled "Origin of the Name Cesarean":

Palmer Findley, in his *Priests of Lucina*, says that "so far as the records show, the cesarean operation was not performed on the living woman in the time of Julius Caesar. This fact should effectually dispose of the popular belief that the name of the operation was derived from the alleged manner of birth of Julius Caesar. It is the consensus that the name was derived from the *lex regia* in which it was ordered that an abdominal section must be performed on all dead and dying women when in the advanced stage of pregnancy. Later, the *lex regia* became known as the *lex cesaria* and from this law the name cesarean was derived."

The earliest *authenticated* cesarean on a *living* woman was performed in 1500 by Jacob Nufer, a butcher who specialized in the gelding of sows. In Bauhin's account of the event (*Fr.* Rousset, Basle, 1588) at Sigerhausen, it is recorded that he "locked the door, offered prayer, placed his wife on the table, and cut her abdomen open. The cut was so skillfully done that the child was removed at once without injury. . . . Later his wife gave birth to twins, and gave birth four times more. The child which was cut from her body lived 77 years." Following this start in operative gynecology came Bain (1540), Direlwang (1549), and Rousset who reported 15 successful cases in 1580.

The Julius Caesar legend does not hold up in the light of the historical facts.

Ice cream contains fewer calories per serving than most ices and sherbets, says National Dairy Council, because it contains less sugar. At the same time, because it contains all of the constituents of milk it is a superior food.

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The skill of the veterinarian has saved a valuable farm animal . . . has added to the prosperity of the farmer.

Another man in your community is interested in the health of farm animals. He is the Purina Dealer, who knows that animals must be healthy and free from parasites to do well on the Purina Chows he sells. But we are constantly reminding him that his place in the field of animal health is only in promoting sound sanitation and management practices. We are urging that he leave disease diagnosis and treatment and the administration of serums and vaccines entirely to the skilled hands of the veterinarian.

The Purina Dealer will appreciate your support in his program of good management, sanitation and feeding. And he recognizes that your veterinary service is essential to optimum feeding results with his customers.

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How do you keep up to date on the veterinary science literature? Did you know that *Biological Abstracts* provides a complete summary of this and related fields in a specially assembled, low-priced sectional edition?

Section F — Abstracts of Animal Production and Veterinary Science — brings together under one cover all the important contributions of interest to you in Veterinary Medicine, Animal Husbandry, Dairy Husbandry, Dairy Bacteriology, Nutrition, and Biochemistry. It is specially designed to fit your needs.

The low subscription price of Section F ($5.00: Foreign, $5.50) is possible because this is a coöperative undertaking. However, our production costs have more than doubled during the past few years and we urgently need more subscriptions if we are to maintain a complete coverage and keep our prices at their present low levels.

BIOLOGICAL ABSTRACTS

University of Pennsylvania, Philadelphia 4, Pa.

American Drugs

The American drug trade has made eminent gains during the wartime years: total exports last year amounted to $116 million, of which $59 million were for prescription drugs, $29 million for vitamins, and $28 million for self-medication *(J.Am.M.A.*, June 15, 1946). But, says the commentator, "Axis drugs are still considered standard remedies in many uninformed areas." Inasmuch as keen competition is sure to develop, we have still to establish a reputation that will be enduring. Germany had a head start, through subsidies for which the democracies never developed an appetite.

Mind mending (= psychiatrics), defined by Dorland as "recognition and treatment of mental ills," is using up a lot of hectic headlines that veterinary medicine—thank you—can always escape.

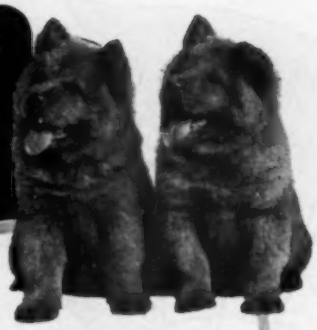
He that sows thorns should not go barefoot.—*Benjamin Franklin.*

Allen Stigler, Paris, Illinois, dairy farmer, aged 72, in the milking of 7 to 10 cows a day has found by actual count, over and over, that it takes from 340 to 350 squirts of milk to make a gallon. He claims to have milked 109,500 gal. in the last fifteen years.—*From Certified Milk.*

Although palmistry (= palm reading) was practiced by the old physicians, and was thrown overboard by modern medicine, it again has its advocates under the name of psychosomatics. Large areas of the brain control the action of the hands, and tell a story to the diagnostician.

"We were fortunate," says Captain Shields Warren, of the Navy Medical Corps (*Science News Letter*, March 23, 1946), "in locating a number of persons who had entered the bombed areas (Japan) soon after the explosion (of the atomic bombs) and had remained there. None showed any deleterious effect."

A 12-YEAR-OLD STORY THAT BREEDERS PROVE DAILY...



HUNT CLUB is Completely Nourishing Food for Puppies, Grown Dogs, Matrons in Whelp and Nursing Mothers

● Every month for 12 years, Hunt Club has talked to breeders from the pages of their favorite publications. Considering the many brands and types of dog foods that have come and gone during those years, this is quite a record.

Our story has been consistently sincere. Hunt Club provides the proteins needed for fast and maximum growth, the minerals needed for strong, full frame development, the carbohydrates that build a reserve of energy and the vitamins necessary for vibrant health and vigor. With this dietetic completeness, Hunt Club has a rich, meaty flavor that dogs really go for!

Veterinarians, too, have acquired a fine regard for Hunt Club's health-and-vigor-building qualities. If you would like further information about this food or samples of it, we will be glad to send them to you.

MARITIME MILLING CO., BUFFALO 2, N. Y.

HUNT CLUB DOG MEAL

Quality Products

1914 - 1946

Produced for the exclusive use of the

Licensed Graduate Veterinarian

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Member Associated Serum Producers, Inc.

CLASSIFIED ADVERTISEMENTS

Twenty-five words or less, $2.50; 8 cents for each additional word. Replies sent in care of the JOURNAL, 25 cents extra.

Deadline for want ads 18th of month preceding date of issue.

Names of classified advertisers using key letters cannot be supplied. Address your reply to the key letters, c/o JOURNAL of the AVMA, 600 So. Michigan Ave., Chicago 5, Ill., and it will be transmitted to the advertiser.

Wanted—Positions

Veterinarian, to be discharged in August, desires position in mixed or large animal practice. Maryland, Virginia, West Virginia, or Kentucky preferred. Married, experienced in large animal work. Address "Box 15," c/o Journal of the AVMA.

Experienced, single, graduate of a recognized college desires an assistantship in a good mixed practice. Will offer excellent references as to character and experience. Address "Box 32," c/o Journal of the AVMA.

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Capable graduate for service in South America on extensive ranches of large American corporation raising cattle, sheep, hogs, etc. All transportation expenses paid under three year contract. Write giving full details, photograph and salary desired. Address "Box 26," c/o Journal of the AVMA.

Assistant, mixed practice, northern New England, 80 per cent large animal. Good pay. Requirements: Graduate of recognized school, honest, willing to work. Married or single. Address "Box 201," c/o Journal of the AVMA.

Veterinarian for small animal hospital, large middlewest city. Prefer veterinarian with some experience. State experience, religion, school, salary desired, etc. Address "Box 22," c/o Journal of the AVMA.

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Veteran—experienced—desires to purchase or to assist with future purchase or partnership general practice. Pennsylvania or Maryland preferred. Address "Box 08," c/o Journal of the AVMA.

To purchase small animal hospital or mixed practice with hospital—by dischargee—licensed in three West Coast states—will consider partnership or assistantship with future buying. Address "Box 803," c/o Journal of the AVMA.

Small animal practice by experienced veterinarian. Financial responsibility. Or can exchange my fine practice which is 75 per cent large animal, including large income from state work and town meat inspection. Physical condition necessitates change. I am licensed in Ohio, New York, Connecticut and Massachusetts. Address "Box B89," c/o Journal of the AVMA.

(Continued on page xl)

Now Ready . . .

White's

NEW VETERINARY PREPARATIONS

This new line of Veterinary Pharmaceutical Specialties, recently introduced by WHITE LABORATORIES, is now ready for distribution to veterinarians.

TYROLENE LIQUID

A drying, bactericidal, analgesic for otitis externa, otorrhea (ear canker), dermatitis with secondary skin infections; also for superficial wounds and in connection with surgical dressings.

TYROLENE OINTMENT

A bactericidal analgesic ointment for ear mites, otorrhea (ear canker), dry dermatitis of dogs; also for superficial wounds and in connection with surgical dressings.

FERIDUM LIQUID

A co-precipitated molybdenized ferrous sulfate incorporated in glucose for hypoglycemia and iron deficiency anemias.

FERIDUM TABLETS

A co-precipitated molybdenized ferrous sulfate in saccharated tablet base for iron deficiency anemia in small animals.

PYROTHANE LIQUID

A detergent parasiticide with low surface tension for control of ticks, fleas and lice on dogs and large animals.

AnD-OLENE OINTMENT

An analgesic, stimulating granulation and epithelization of superficial wounds, burns and cracked, fissured teats of dairy cows . . . in a soluble ointment base.

ROTO-DEE POWDER

A clinging D.D.T.—Rotenone powder for control of ticks, fleas and lice on dogs and large animals.

White's Veterinary Pharmaceutical Specialties, with *dual dispensing labels*, are distributed through regular Veterinary Supply Houses. If your supply house does not have these preparations, they will gladly order them for you.

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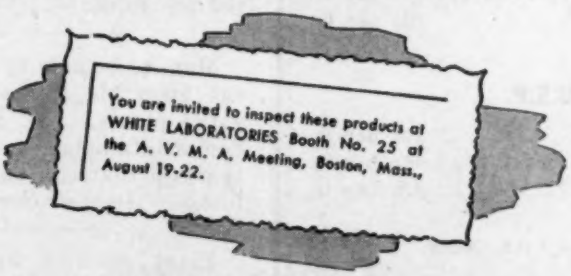

Veterinary Division

White Laboratories, Inc.

Newark 7 **New Jersey**

2-4-D Weed Killer Powder

(nothing to add but water)

20 oz. can .....$2.70 per can
10 lb. drum ..... 1.88 per lb.

Twenty ounces makes 100 gallons of spray solution. 150 to 250 gallons required per acre, depending on size of weeds.

2-4-D Weed Killer Liquid

(Nothing to add but water)

5 gallon can.....$7.60 per gal.
1 gallon can..... 7.80 per gal.

One half gallon makes 100 gallons of spray solution. 150 to 250 gallons required per acre, depending on size of weeds.

DDT Wettable Powder 50%

for preparing aqueous suspensions for use as spray on livestock, certain crops and in barns and animal premises.

1 lb. can (12 to case).....61c per lb.
10 lb. drums .....56c per lb.
25 lb. drums .....52c per lb.
110 lb. drums .....45c per lb.

DDT Powder Technical 100%

(for preparing oil spray solutions)

1 lb. cans (12-1 lb. to case) 90c per lb.
5 lb. cans .....85c per lb.
10 lb. drums .....80c per lb.
25 lb. drums .....75c per lb.
100 lb. drums .....70c per lb.

Talc. Purified U.S.P.

5 lb. cans .....23c per lb.
25 lb. drums .....15c per lb.
50 lb. p. bag .....12c per lb.

All prices F.O.B. Chicago

AMERICAN CHEMICAL CO.

433 East Erie, Chicago 11, Illinois

Roughage for the Kitchen

After the present war-created food shortages are made up, we may be told that we should continue to hold down our livestock population in order to provide grain for some needy population elsewhere in the world.—*John Holmes, before the Nebraska Stock Growers' Association, June 14, 1946.*

Since farmers may not find it easy to go back to livestock as a principal source of income, perhaps some other way will be found to convert buffalo grass, alfalfa, and cornstalks into autocrats of the dining room. You never can tell what the chefs will do.

Ambulating Cadavers. — "Change was noted in 7 who came to autopsy."—*From a famous Med. J.*

Life is a grindstone, and whether it grinds a man down or polishes him up depends upon the stuff he's made of.

The total value of the United States is generally considered to be around $400 billion, and the cost of its wars since 1775 was $414 billion.—*This Week.*

Better than to play up the idea that ours is a land of plenty is to admit that we have always been dipping pretty close to the bottom of the barrel.

The highest standards of living are found in New Zealand, Canada, and the United States, says the Population Reference Bureau—three livestock countries of the top rank.

Man, to be able to exist at all, is dependent upon his domestic animals and cultivated plants. . . . Between man and his domestic animals and plants exists a relationship that can only be called true symbiosis.—*Animal Breeding, by Hagedoorn.*

Plant growers have been much more diligent than animal breeders to resort to the teachings of genetics. For different reasons, animal breeders have lagged behind. In animals that reproduce but once a year, group Mendelian demonstrations are not easily carried out.

Quality First

Through Years of Preparation of

Rabies Vaccine

Quality Has Been Our Prime Consideration

Disinterested research and extensive field use have always shown high potency for Lockhart Rabies Vaccine even before potency tests were required. Development of the Habel (mouse) test has enabled us to improve production methods, thereby increasing the value of a product which has always been good.

Rabies Vaccine (Lockhart) is a smooth, non-irritating suspension easily administered through small needles. It is made for the discriminating veterinarian who wants his client to have the advantage of the best possible product.

Your professional reputation is best guarded by the use of products with a long record of dependability. Often the cheapest product obtainable has nothing to recommend it except its cheapness.

LOCKHART RABIES VACCINE IS SOLD ONLY TO GRADUATE VETERINARIANS AND IS NOT SOLD TO ANY CITY, COUNTY, STATE OR OTHER GOVERNMENTAL AGENCY AT A PRICE LOWER THAN THAT WHICH PRACTITIONERS PAY.

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"Producers of Better Biologicals
For Graduate Veterinarians"

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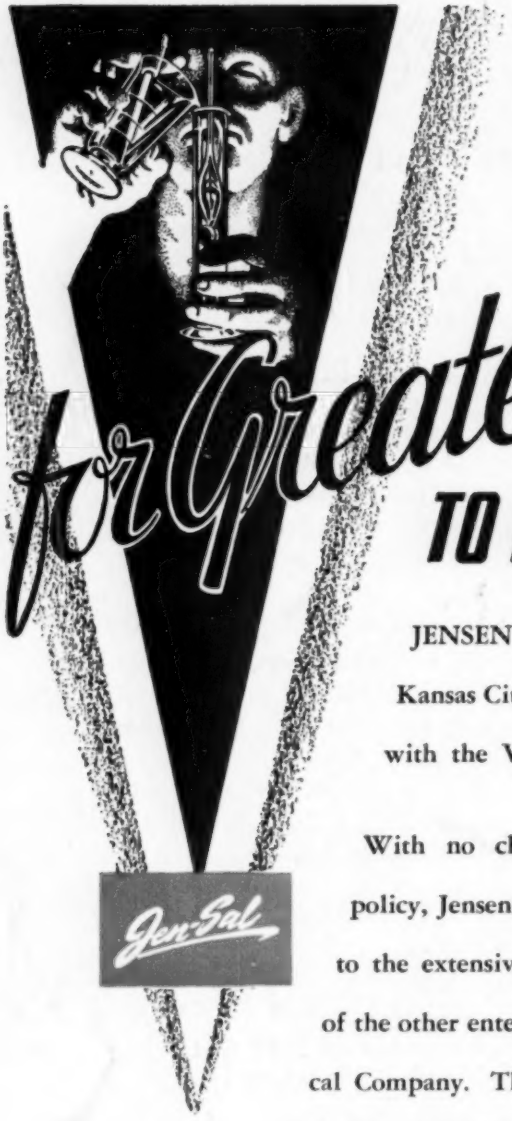

for Greater Service TO THE PROFESSION

JENSEN-SALSBERY LABORATORIES, INC., of Kansas City, Missouri, announce their amalgamation with the Vick Chemical Company of New York.

With no change in management, personnel or policy, Jensen-Salsbery Laboratories will have access to the extensive research and production facilities of the other enterprises comprising the Vick Chemical Company. The affiliation will provide a continuing source for the antibiotics and biochemicals so important in modern veterinary practice.

Current expansion of facilities at Kansas City will likewise increase Jensen-Salsbery's ability to serve the profession in biological and other fields, with products which will, as always, be sold only to qualified veterinary practitioners.